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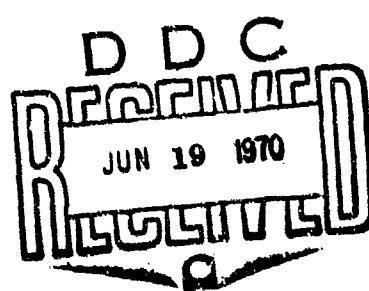
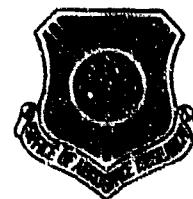
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L. G. MANGONI FIELD, BEDFORD, MASSACHUSETTS

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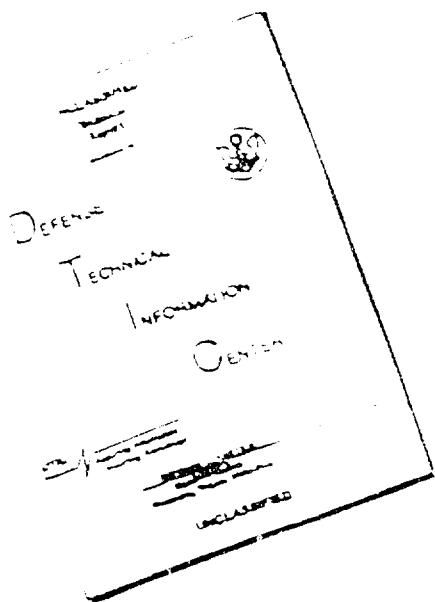
**Vertical-Attenuation Model With Eight Surface  
Meteorological Ranges 2 to 13 Kilometers**

**LOUIS ELTERMAN**

**OFFICE OF AEROSPACE RESEARCH  
United States Air Force**



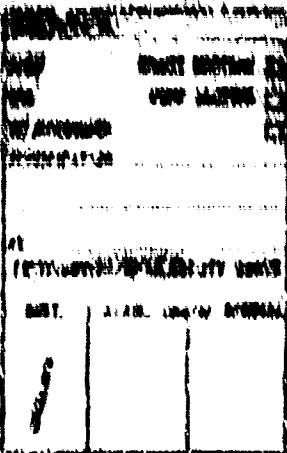
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OPTICAL PHYSICS LABORATORY PROJECT 7821

**AIR FORCE CAMBRIDGE RESEARCH LABORATORIES**

L. G. HANSCOM FIELD, BEDFORD, MASSACHUSETTS

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## **Abstract**

An examination of the haze regime shows that : (1) the aerosol properties of a surface meteorological range generally affect a mixing layer to 5 km altitude, and (2) the lower and upper visibility limits of a haze regime are defined by meteorological ranges 1.2 km and 15 km respectively. Within these limits eight meteorological ranges are selected for developing uv, visible, and ir aerosol attenuation coefficients. An aerosol scale height is derived for each meteorological range. Finally, the computed aerosol attenuation coefficients are presented as tabulations, which include previously published attenuation parameters (aerosols, molecules and ozone) to 50 km altitude.

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## Symbols

$d$	Horizontal path length (km)
$H_p$	Aerosol scale height (km)
$h$	Altitude (km)
$m$	Aerosol index of refraction
$N_p$	Aerosol number density ( $\text{cm}^{-3}$ )
$N_o$	Constant proportional to total number of particles between $r_1$ and $r_2$
$N_r$	Molecular number density ( $\text{cm}^{-3}$ )
$V_\eta$	Meteorological range (km)
$r$	Particle radius (microns)
$T_h$	Horizontal transmission
$T_{0-h}$	Transmission between sea level and altitude $h$
$T_{h-\infty}$	Transmission between altitude $h$ and space
$T_{\Delta h}$	Transmission between two altitudes above sea level
$\beta_3$	Atmospheric ozone absorption coefficient ( $\text{km}^{-1}$ )
$\beta_p$	Aerosol attenuation coefficient ( $\text{km}^{-1}$ )
$\beta_r$	Rayleigh (molecular) attenuation coefficient ( $\text{km}^{-1}$ )
$\beta_{\text{ext}}$	Extinction coefficient ( $\text{km}^{-1}$ )
$\theta$	Zenith angle
$\lambda$	Wavelength (microns)
$\sigma_p$	Aerosol scattering cross section ( $\text{cm}^2$ )
$\sigma_r$	Rayleigh scattering cross section ( $\text{cm}^2$ )
$\tau_3$	Ozone optical thickness from sea level to altitude $h$ (0-h)
$\tau'_3$	Ozone optical thickness from altitude $h$ to space ( $h-\infty$ )
$\tau_p$	Aerosol optical thickness from sea level to altitude $h$ (0-h)
$\tau'_p$	Aerosol optical thickness from altitude $h$ to space ( $h-\infty$ )
$\tau_r$	Rayleigh optical thickness from sea level to altitude $h$ (0-h)
$\tau'_r$	Rayleigh optical thickness from altitude $h$ to space ( $h-\infty$ )

- $\tau_{\text{ext}}$  Extinction optical thickness (molecular + ozone + aerosol) from sea level to altitude  $h$  ( $0-h$ )
- $\tau'_{\text{ext}}$  Extinction optical thickness (molecular + ozone + aerosol) from altitude  $h$  to infinity ( $h-\infty$ )
- $\psi$  Aerosol size distribution function

## **Vertical-Attenuation Model With Eight Surface Meteorological Ranges 2 to 13 Kilometers**

### **I. INTRODUCTION**

A series of atmospheric attenuation parameters which vary with wavelength and altitude are useful for carrying out a variety of exploratory calculations. Such information can take the form of curves, tabulations, or analytic expressions. It is recognized, however, that limitations exist due to variability of the atmosphere's constituents, especially the aerosol content of the lower troposphere, which contributes extensively to the optical thickness. For example, in the photopic region, assuming a representative wavelength  $\lambda = 0.55 \mu$  and a meteorological range of 23 km near the surface, the aerosol content in the first 3 km above sea level accounts for about 70 percent of the total optical thickness. If surface conditions are hazy or polluted, the aerosol content accounts for a larger percentage. This suggests that the treatment of atmospheric attenuation can be improved by introducing aerosol parameters related to the easily measured meteorological range, that is, by introducing quantitatively a haze regime which is considered as encompassing a series of meteorological ranges between those associated with normally clear conditions and fog. See Figure 1.

Near the surface and at low altitudes, the aerosol constituent is ubiquitous and highly variable, and an aerosol component is present even for a very clear atmo-

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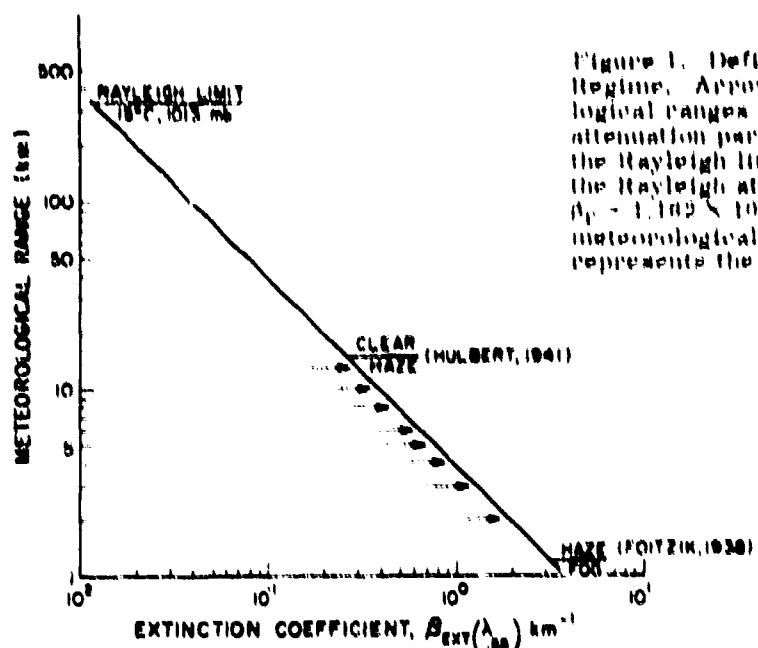


Figure 1. Defined limits of the haze regime. Arrows designate the meteorological ranges selected for developing attenuation parameters. Also shown is the Rayleigh limit which corresponds to the Rayleigh attenuation coefficient,  $\beta_p = 1.109 \times 10^{-2} \text{ km}^{-1}$ , and the related meteorological range 336 km;  $\lambda = 0.55 \mu$  represents the photopic region.

spheric condition. Thus, the boundaries of the haze regime (used in the sense of diminished meteorological range) must be defined. The haze limits will be based on the Koschnieder (1924) definition,

$$V_\eta = \frac{3.91}{\beta_{ext}}, \quad (1a)$$

where

$$\beta_{ext} = \beta_p + \beta_r. \quad (1b)$$

$V_\eta$  is the meteorological range (km) and  $\beta_{ext}$ ,  $\beta_r$ ,  $\beta_p$  are the extinction, Rayleigh, and aerosol attenuation coefficients ( $\text{km}^{-1}$ ) respectively. Equations (1a) and (1b) apply to sea level conditions and the photopic region represented by  $\lambda = 0.55 \mu$ . When converted to a log-log trace (Figure 1), several boundaries can be designated conveniently. The Rayleigh limit, 336 km, is based on the standard atmosphere ( $15^\circ\text{C}$ , 1013 mb). Foitzik (1938) found that the haze-fog transition is relatively abrupt, and, therefore, can be readily identified; and that  $V_\eta \approx 1.2 \text{ km}$  represents the

transition. Moltalk's result is confirmed adequately by Neuburger and Chen (1960), Bulleit (1963), Chen (1963, 1964) and the analysis by Eldridge (1960).

In contrast, the literature pertaining to a boundary condition between a clear and hazy atmosphere is meager. Since no abrupt changes occur in this region, the requirement is tantamount to dealing quantitatively with psycho-physical observations. Bullock (1941) correlated meteorological range with atmospheric conditions such as dense fog, light fog, haze, clear, and so forth, using a telescopic photometer, the measurements being made in the vicinity of Washington, D. C. His results led him to propose  $V_{\eta} = 18$  km as the haze-clear boundary condition. Despite the subjective element in this result, it provides some guidance. In conjunction with Moltalk's observations, it permits defining the haze regime as  $1.2 \leq V_{\eta} \leq 18$  km. The meteorological ranges and corresponding parameters shown in Figure 1 and Table I will be used in the material to follow because they are spaced at convenient

Table I. Meteorological Ranges and Corresponding Parameters  
(Representative Photopic Wavelength  $\lambda = 0.55\mu$ )

$V_{\eta}$ (km)	$\beta_{ext}$ ( $\text{km}^{-1}$ )	$\beta_r$ ( $\text{km}^{-1}$ )	$\beta_p$ ( $\text{km}^{-1}$ )	$H_p$ (km)
2	1.955	0.0116	1.043	0.84
3	1.903	0.0116	1.201	0.90
4	0.978	0.0116	0.966	0.95
5	0.782	0.0116	0.770	0.99
6	0.652	0.0116	0.640	1.03
8	0.489	0.0116	0.476	1.10
10	0.391	0.0116	0.379	1.15
13	0.301	0.0116	0.289	1.23

$V_{\eta}$  - meteorological range  
 $\beta_{ext}$  - extinction coefficient  
 $\beta_r$  - Rayleigh attenuation coefficient  
 $\beta_p$  - aerosol attenuation coefficient  
 $H_p$  - aerosol scale height

logarithmic intervals, are adequately separated from the haze-fog transition, and are within the haze regime characterized by diminished meteorological range. The scale height in the last column of the tabulation will be discussed later.

## 2. SPECTRAL METEOROLOGICAL RANGES

The concept of photopic meteorological range can be widened spectrally if concurrent measurements of attenuation coefficients at other wavelengths are available. The work of Curcio, Knestruck, and Cosden (1961), which is the basis for Figure 2, is an example where  $\beta_p(V_4, \lambda)$  was obtained through a series of concurrent measurements. Because of the quantity of data obtained, the results for the meteorological range  $V_\eta = 4 \text{ km}$  are considered representative by these authors. A family of distributions,  $\beta_p(V_\eta, \lambda)$ , can be computed if the  $\beta_p(V_4, \lambda)$  values are used in conjunction with Eq. (1) so that

$$\beta_p(V_\eta, \lambda) = \beta_p(V_4, \lambda) \cdot \left[ \frac{3.91}{V_\eta} - \beta_r(\lambda, 55) \right] / \left[ \frac{3.91}{V_4} - \beta_r(\lambda, 55) \right]. \quad (2)$$

$V_\eta$  (km) being the photopic ( $\lambda = 0.55\mu$ ) meteorological ranges of interest. Using Eq. (2), the aerosol attenuation coefficient is found for various combinations of meteorological range and wavelength, 0.27 to  $2.17\mu$  (Table 2), that is, 160 surface values,  $\beta_p(V_\eta, \lambda)$ . The shapes of the distributions so determined (Figure 2) conform rigorously to the distribution for  $V_\eta = 4 \text{ km}$ , on which they are based.

Because of the functional importance of Eq. (2), it would be in order to examine its implications, especially those related to particle size considerations. If we

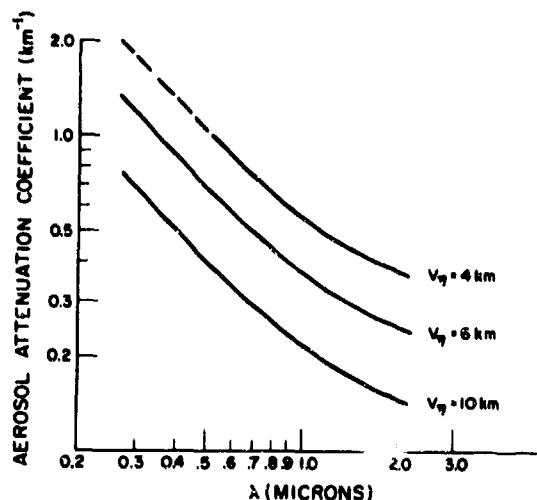


Figure 2. Wavelength Distributions of the Aerosol Attenuation Coefficient for  $V_\eta = 6 \text{ km}$  and  $V_\eta = 10 \text{ km}$  Derived From  $V_\eta = 4 \text{ km}$  Using Eq. (2). The  $V_\eta = 4 \text{ km}$  curve is obtained from measurements by Curcio, Knestruck and Cosden (1961), which included the wavelength region  $0.40 \leq \lambda \leq 2.17\mu$ . An extrapolation to  $0.27\mu$  permits computations for an overall 20 selected wavelengths,  $0.27 < \lambda < 2.17\mu$ , and 8 meteorological ranges  $2 \leq V_\eta \leq 13 \text{ km}$ . The dash portion of the top curve represents extrapolation

consider a real atmosphere the aerosol sizes within unit volume determine the aerosol attenuation coefficient described by

Table 2. Surface Aerosol Attenuation Coefficients Corresponding to Figure 2

$\lambda$ ( $\mu$ )	$\beta_p(h_o, \lambda, V_\eta)$		
	$V_4$	$V_6$	$V_{10}$
0.27	2.00	1.33	$7.85 \times 10^{-1}$
0.28	1.89	1.25	$7.42 \times 10^{-1}$
0.30	1.78	1.18	$6.98 \times 10^{-1}$
0.32	1.67	1.11	$6.55 \times 10^{-1}$
0.34	1.56	1.03	$6.12 \times 10^{-1}$
0.36	1.45	$9.61 \times 10^{-1}$	$5.69 \times 10^{-1}$
0.38	1.40	$9.28 \times 10^{-1}$	$5.49 \times 10^{-1}$
0.40	1.30	$8.61 \times 10^{-1}$	$5.10 \times 10^{-1}$
0.45	1.15	$7.62 \times 10^{-1}$	$4.51 \times 10^{-1}$
0.50	1.05	$6.96 \times 10^{-1}$	$4.12 \times 10^{-1}$
0.55	$9.66 \times 10^{-1}$	$6.40 \times 10^{-1}$	$3.79 \times 10^{-1}$
0.60	$8.60 \times 10^{-1}$	$5.70 \times 10^{-1}$	$3.37 \times 10^{-1}$
0.65	$7.80 \times 10^{-1}$	$5.17 \times 10^{-1}$	$3.06 \times 10^{-1}$
0.70	$7.30 \times 10^{-1}$	$4.84 \times 10^{-1}$	$2.86 \times 10^{-1}$
0.80	$6.40 \times 10^{-1}$	$4.24 \times 10^{-1}$	$2.51 \times 10^{-1}$
0.90	$5.80 \times 10^{-1}$	$3.84 \times 10^{-1}$	$2.28 \times 10^{-1}$
1.06	$5.20 \times 10^{-1}$	$3.45 \times 10^{-1}$	$2.04 \times 10^{-1}$
1.26	$4.70 \times 10^{-1}$	$3.11 \times 10^{-1}$	$1.84 \times 10^{-1}$
1.67	$4.00 \times 10^{-1}$	$2.65 \times 10^{-1}$	$1.57 \times 10^{-1}$
2.17	$3.60 \times 10^{-1}$	$2.39 \times 10^{-1}$	$1.41 \times 10^{-1}$

$$\beta_p(m, \lambda) = \int_{r_1}^{r_2} \sigma_p(m, r, \lambda) n(r) dr, \quad (3)$$

$$n(r) \approx N_o(V_\eta) \psi(r) \quad (4)$$

and when combined

$$\beta_p(r, \lambda, V_\eta) = N_o(V_\eta) \int_{r_1}^{r_2} \sigma_p(r, \lambda) \psi(r) dr. \quad (5)$$

In these expressions,  $\beta_p$  is the aerosol attenuation coefficient; the index of refraction is  $m$  (to be omitted following Eq. (3) because subsequent considerations will assume  $m$  invariable);  $r_1$  and  $r_2$  are the lower and upper radii limits of the size distribution  $n(r)$ ;  $N_o$  is a constant proportional to the total number of particles between  $r_1$  and  $r_2$ ;  $\psi$  is the size distribution function (the same for all selected meteorological ranges).

It is implicit in Eq. (5) that  $\beta_p$  and correspondingly the aerosol number density determine the meteorological range ( $V_\eta$ ). The integral in Eq. (5) is a wavelength function independent of the meteorological range, which accounts for the conformity in shape of the curves in Figure 2.

### 3. STATEMENT OF OBJECTIVES

The material thus far has dealt with: (1) the limits of the haze regime (in terms of meteorological range), (2) derivation of spectral aerosol attenuation coefficients ( $0.27 \leq \lambda \leq 2.17\mu$ ) for a series of meteorological ranges, and (3) an examination of the assumptions implicit in the derivation of these coefficients. Now, a statement of objectives can be made. Specifically, aerosol scale heights will be determined for the coefficients in accordance with their meteorological range and their vertical distribution. Then values of the coefficients for km intervals (0-5 km) will be computed. To the coefficients will be added previously published Rayleigh, ozone, and aerosol parameters for altitudes to 50 km (Elterman, 1968) in order to formulate an attenuation model for a haze regime with eight meteorological ranges ( $2 \leq V_\eta \leq 13$  km).

### 4. AEROSOL MIXING LAYER

The procedure for assessing the aerosol attenuation coefficient above the surface can parallel that used for a clear atmosphere (Elterman, 1968), which entails the ap-

plication of a suitable aerosol scale height. As an introduction to scale height considerations, it is noted that, meteorologically, a significant role is assigned to the altitude interval up to several km above the surface. This is a region of strong vertical mixing determined by such factors as heat-transfer across the earth-air interface, advective winds, and consequent turbulence attributable to the region's topography. The resultant vertical flow, mechanical and convective, is characterized, meteorologically, as a mixing depth equivalent to the vertical extent of the mixing layer. When dealing with aerosol attenuation coefficients, aerosol conditions in this layer can be examined in terms of mixing ratios such that for a selected altitude  $h$

$$\frac{\beta_p(h, \lambda)}{\beta_r(h, \lambda)} = \frac{\sigma_p(\lambda)}{\sigma_r(\lambda)} \cdot \frac{N_p(h)}{N_r(h)}, \quad (6)$$

where  $\beta_p$  and  $\beta_r$  are respectively the aerosol and Rayleigh attenuation coefficients ( $\text{cm}^{-1}$ ); and  $N_p$  and  $N_r$  are respectively the aerosol and molecular number densities ( $\text{cm}^{-3}$ ). The terms  $\sigma_p$  and  $\sigma_r$ , which are respectively the aerosol and Rayleigh cross sections ( $\text{cm}^2$ ), tend to remain constant with altitude (a reasonable assumption). Eq. (6) then asserts that  $\beta_p(h, \lambda) / \beta_r(h, \lambda)$ , known as the optical mixing ratio, is proportional to the number density mixing ratio  $N_p(h) / N_r(h)$ . The size distribution for  $N_p$  comprises aerosols sufficiently small to be responsive to the usual factors conducive to mixing. Meteorologically, the mixing depth is considered to be 3 km or less, so that an aerosol mixing depth determined from an optical mixing ratio or a number density mixing ratio or even by direct (in-situ) measurement of  $N_p(h)$  should be in agreement.

The conclusion, however, based on aerosol measurements sufficient to provide a meaningful average, is that the mixing depth normally extends to a greater altitude. Siedentopf's (1944) sky luminance measurements (18 aircraft flights) show that on the average, the aerosol concentration decreases exponentially with altitude and that the scale height undergoes a significant change between 5 and 6 km. Penndorf's (1954) analysis of solar attenuation observations (8 aircraft flights) shows the scale height change to occur at 4.5 km. An examination of Rosen's (1967) balloon photoelectric countermeasurements, selecting only those profiles where the surface layer is readily discerned (37 profiles obtained on ascent, descent and for 2 wavelengths), shows that the average mixing depth is 5.4 km. An analysis of optical probing measurements (Elterman, Wexler, and Chang, 1969) yielded optical mixing ratios which show that the depth of the surface layer averages 5.3 km (78 profiles at  $0.55\mu$  wavelength). Blifford and Renger (1969) completed a series of 22 aerosol collections using an aircraft-mounted impactor. Samples obtained to 9.1 km provide mixing ratios that indicate the mixing depth to be in the range 3-6 km.

Measurement of the atmospheric aerosol distribution has received considerable emphasis in the USSR, for example, in the work of Faraponova (1965), who conducted more than 60 aircraft flights in cloudless weather (solar atmospheric attenuation) to 6.5 km altitude, and in the summary by Kondratiev (1969). In general, the USSR findings are compatible with those previously described.

An overall assessment of the results shows that the aerosol content for the low altitudes is characterized by a mixing depth between 4.5 and 5.5 km. As has been mentioned, it is somewhat higher than the mixing depth of the meteorology discipline. However, the difference is understandable when it is considered that in almost all instances, aerosol measurements were conducted over the continent and with cloudless skies, whereas the mixing layer in the meteorological sense represents less limited conditions. Accordingly, the designation "aerosol mixing layer" will be used, and will be assigned a depth of 5 km (considered representative). Within the aerosol mixing layer, considerable variation and stratification (frequently due to inversions) can occur but, on the average, the particle distribution,  $N_p(h)$ , and correspondingly the aerosol attenuation coefficient,  $\beta_p(h)$ , decreases exponentially for the altitude region 0-5 km. The rate of decrease can be expressed as a constant scale height although, as will be shown, not necessarily the same scale height for each meteorological range. At 5 km, effects of mixing are substantially diminished.

##### 5. THE USE AND JUSTIFICATION FOR A SCALE HEIGHT FAMILY

If aerosol conditions at the upper terminus of the aerosol mixing layer are relatively stable compared to those at lower altitudes, as discussed, it suggests that the scale height characterizing the aerosol mixing layer is related to the meteorological range. The existence of such a relationship was examined by means of Figure 3, using  $\lambda = 0.55\mu$ . Specifically, the scale heights were determined by: (1) utilizing the surface values,  $\beta_p(\lambda_{.55}, V_\eta)$ , for the meteorological ranges of interest derived from Eq. (2); and (2) taking from published tabulations (Elterman, 1968) at 5 km the aerosol attenuation coefficient,  $\beta_p(h_5, \lambda_{.55}) = 5.0 \times 10^{-3} \text{ km}^{-1}$ . This quantity (assumed representative because the tabulations are based on 79 sets of measurements) is considered relatively independent of the meteorological range for reasons already given. With surface values and the 5 km value established, the aerosol scale height ( $H_p$ ) was derived for each meteorological range by using

$$\beta_p(h_5, \lambda_{.55}) = \beta_p(h_0, \lambda_{.55}) e^{-h/H_p} \quad (7)$$

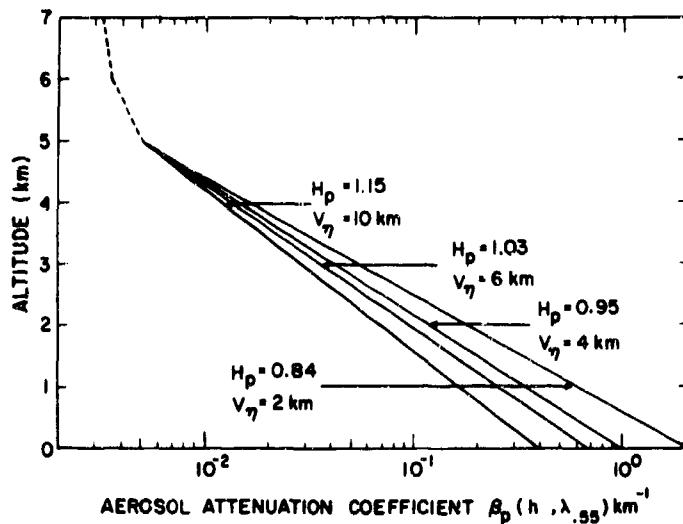


Figure 3. Relationships of Four Aerosol Scale Heights ( $H_p$ ) With Meteorological Ranges ( $V_\eta$ ), Aerosol Attenuation Coefficients ( $\beta_p$ ) and Aerosol Mixing Layer Altitudes (0-5 km). The aerosol scale height family was computed using  $\lambda = 0.55\mu$ . The dash line represents values of  $\beta_p(h)$  above 5 km (Elterman, 1968)

It is implicit in this procedure that the derived scale height family is independent of wavelength. With  $H_p$  known, the values for  $\beta_p(h, \lambda)$  can be calculated (using Eq. (7)) for each km interval up to 5 km (the aerosol mixing layer). To summarize, the decrease of  $\beta_p$  with altitude is represented by a family of scale heights and each scale height depends on the meteorological range of interest (Table 1).

The validity of this procedure depends not only on the value but also on the variability of  $\beta_p(h_5, \lambda)$  as it affects the related parameters of interest. In this respect, we note that the aerosol optical thickness up to 5 km,  $\tau_p(h_{0-5}, \lambda)$ , is an important objective; and also that it is obtained by integration, which makes it sensitive to change of its composite elements, especially at low altitudes. Thus, a suitable evaluation of the aerosol scale height family derived in accordance with Figure 3, is to vary  $\beta_p(h_5, \lambda_{.55})$  significantly and to examine the optical thickness and transmission change for the first 5 km and for the several meteorological ranges indicated. This was done by changing  $\beta_p(h_5, \lambda_{.55}) = 5.0 \times 10^{-3} \text{ km}^{-1}$  by a standard deviation,  $\sigma = \pm 3.4 \times 10^{-3}$ . For this calculation, as previously mentioned, the mean  $\beta_p$  and  $\sigma$  values at 5 km altitude were obtained from 79 selected optical probing measurements (Elterman, 1968). The resulting aerosol optical thickness and transmission changes are shown in Figure 4. For the eight meteorological

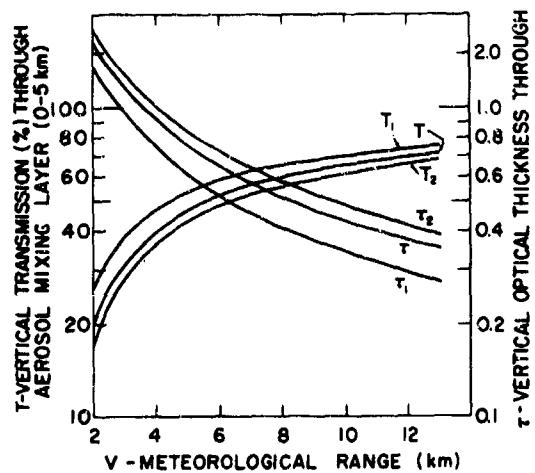


Figure 4. Comparison of Vertical Optical Thickness and Transmission for  $\pm \sigma$  (Standard Deviation) and a Mean Aerosol Attenuation Coefficient  $\beta_p(h_5, \lambda_{55})$  at the Top of an Aerosol Mixing Layer Having 5 km Depth.  $T$  and  $\tau$  represent the transmission and optical thickness based on  $\beta_p(h_5, \lambda_{55}) = 5.0 \times 10^{-3} \text{ km}^{-1}$ , the mean of 79 measurements.  $T_1$  and  $\tau_1$  represent the transmission and optical thickness based on  $\beta_p(h_5, \lambda_{55}) - \sigma$ , where  $\sigma = 3.4 \times 10^{-3}$ .  $T_2$  and  $\tau_2$  represent the transmission and optical thickness based on  $\beta_p(h_5, \lambda_{55}) + \sigma$

ranges, a  $+\sigma$  of the aerosol attenuation coefficient corresponds to an average of 3.6 percent change in vertical transmission (attributable to aerosols only). Similarly, a  $-\sigma$  corresponds to a 6.4 percent vertical transmission change. The changes are unequal due to exponential relationships. These changes are relatively modest especially when it is considered that the aerosol attenuation coefficients representing the meteorological ranges 2 km to 13 km extend over an order of magnitude. Based on this discussion, it is concluded that for conditions of diminished meteorological range in the aerosol mixing layer, there is sufficient justification for the use of an aerosol scale height family, and that the scale height selected is best determined from the meteorological range of interest.

#### 6. THE OPTICAL THICKNESS COMPUTATION

Since the aerosol attenuation coefficients,  $\beta_p(h, \lambda, V_\eta)$ , as well as the aerosol scale heights,  $H_p$  (constant for each meteorological range) are known, an analytical expression for the aerosol optical thickness,  $\tau_p$ , was derived as follows:

$$\tau_p(h, \lambda, V_\eta) = \int_0^h \beta_p(h, \lambda, V_\eta) dh. \quad (8)$$

For a given wavelength, the aerosol scale height expression applicable to the haze regime depends on the meteorological range and the vertical distribution of the aerosol attenuation coefficient. Accordingly,

$$\beta_p(h, \lambda, V_\eta) = \beta_p(h_o, \lambda, V_\eta) e^{-h/H_p(V_\eta)} . \quad (9)$$

Combining Eqs. (8) and (9) and integrating,

$$\tau_p(h, \lambda, V_\eta) = H_p(V_\eta) \cdot \beta_p(h_o, \lambda, V_\eta) - H_p(V_\eta) \left[ \beta_p(h_o, \lambda, V_\eta) \cdot e^{-h/H_p(V_\eta)} \right] . \quad (10)$$

Applying Eq. (9) to the bracketed factor in Eq. (10),

$$\tau_p(h, \lambda, V_\eta) = H_p(V_\eta) [\beta_p(h_o, \lambda, V_\eta) - \beta_p(h, \lambda, V_\eta)] . \quad (11)$$

Equation (11) was used to compute the aerosol optical thickness for the combinations of wavelength, altitude, and meteorological range required for Figure 4, and the twenty tabulations (surface to 5 km) in Tables 3.1 to 3.20.

## 7. SUMMARY AND CONCLUDING REMARKS

To formulate an atmospheric attenuation model with meteorological ranges for a haze regime, it was necessary first to define the limits of the haze regime. Following this, eight meteorological ranges were selected within the regime and the surface aerosol attenuation coefficient distribution in wavelength was determined for each meteorological range. From the surface aerosol attenuation coefficients, the  $\beta_p(h, \lambda, V_\eta)$  then were computed for km intervals to 5 km altitude (typical depth of the aerosol mixing layer) by applying a scale height derived for each meteorological range. Optical thickness values required for the model were computed with Eq. (11). Finally, parameters from an earlier published attenuation model (Elterman, 1968) were combined with those derived in this paper, in order to provide continuity to 50 km altitude.

The shortest wavelength used in this model is 0.27 microns. The use of shorter wavelengths would require the treatment of  $O_2$  absorption and its attendant uncertainties. The longest wavelength used is 2.17 microns. Calculations for longer wavelengths are complicated by the presence of absorption bands of  $H_2O$ ,  $CO_2$  and their wings. Also, at longer wavelengths and low altitude haze conditions, absorption by the aerosol itself is an unknown factor. In between, a total of 20 wavelengths is chosen, within the atmospheric windows and for the ultraviolet region where ozone absorption is important (Table 2). If required, a satisfactory interpolation for the optical parameters can be made between wavelengths in the region 0.27 to

about  $1\mu$  because light extinction in this spectral region is caused primarily by scattering and ozone absorption and both processes are slowly varying functions of the wavelength. This is true of the extinction coefficients,  $\beta_{ext}(\lambda)$ , as well as their components,  $\beta_p(\lambda)$ ,  $\beta_r(\lambda)$ , and generally  $\beta_3(\lambda)$ .

Beyond  $1\mu$ , the computations did not include molecular absorption. Therefore, the tables for wavelengths 1.06, 1.26, 1.67, and  $2.17\mu$  represent the IR windows only. The presence of absorption bands due to  $H_2O$  and other gases does not permit interpolation between  $1.06 \leq \lambda \leq 2.17\mu$ , the near IR region considered in this model, unless the interpolation is limited to the Rayleigh and aerosol parameters (no ozone absorption present).

#### 8. TABULATIONS

The tabulations that follow are in computer notation. For example, read  $5.96 - 2 = 5.96 \times 10^{-2}$  and  $5.96 2 = 5.96 \times 10^2$ .

The format deals systematically with a multiplicity of variables, thus permitting a variety of exploratory calculations. As an example, the extinction coefficients can be used for exploratory transmission calculations. The atmospheric extinction coefficient is the sum of all the attenuating components:

$$\beta_{ext}(h, \lambda, V_\eta) = \beta_r(h, \lambda) + \beta_3(h, \lambda) + \beta_p(h, \lambda, V_\eta). \quad (12)$$

For horizontal transmission over a path length ( $d$ ) at selected altitude, wavelength, and meteorological range

$$T_h(h, \lambda, V_\eta) = \exp [-\beta_{ext}(h, \lambda, V_\eta) \cdot d]. \quad (13)$$

For vertical and slant path transmission from sea level to an altitude of interest at zenith angle  $\theta$ ,

$$T_{o-h}(h, \lambda, V_\eta) = \exp [-\tau_{ext}(h, \lambda, V_\eta) \cdot \sec \theta]. \quad (14)$$

For vertical and slant path transmission between two altitudes ( $h_1$  and  $h_2$ ) above sea level,

$$T_{\Delta h}(h, \lambda, V_\eta) = \exp [-[\tau_{ext}(h_2, \lambda, V_\eta) - \tau_{ext}(h_1, \lambda, V_\eta)] \sec \theta]. \quad (15)$$

For a vertical and slant path transmission from a selected altitude out into space,

$$T_{h-\infty}(h, \lambda, V_\eta) = \exp [-\tau'_{ext}(h, \lambda, V_\eta) \sec \theta]. \quad (16)$$

When used individually, Rayleigh, aerosol, and ozone parameters are formulated similarly.

Table 3.i. Parameters at 0.27 Microns

Lat.	Alt. (km)	Rayleigh atten. coeff. (km <sup>-1</sup> )	Rayleigh optical thick. (0-h)	Aerosol attenu. coeff. (km <sup>-1</sup> )	Aerosol optical thick. (0-h)	Ozone absoorb. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)	Ozone absoorb. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)	Ozone absoorb. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)					
V <sub>n</sub>	h	B <sub>r</sub>	T <sub>r</sub>	T <sub>r'</sub>	T <sub>r''</sub>	P <sub>r</sub>	P <sub>r'</sub>	P <sub>r''</sub>	P <sub>r'''</sub>	P <sub>r''''</sub>	P <sub>r''''</sub>					
0	2,242	-1	-0.00	1.928	6.02	0	-0.00	3.292	7.68	-1	-1.90	10.976	5.30	0	-0.00	76.216
1	2,071	-1	-0.17	1.710	1.19	0	2.328	1.96	0.95	-1	-2.15	7.926	2.05	3	-0.26	73.315
2	1,875	-1	-0.53	1.513	3.56	-1	5.018	-0.76	0.15	-1	-1.86	5.9275	1.16	0	-0.00	71.678
3	1,694	-1	-0.93	1.335	1.05	-1	3.223	-0.76	0.25	-1	-1.35	4.9828	0.97	-1	-0.16	69.478
4	1,526	-1	-1.32	1.176	3.14	-2	3.283	-0.89	0.75	-1	-2.35	5.4532	0.54	-1	-0.50	73.325
5	1,372	-1	-1.68	1.030	9.21	-3	3.301	-0.91	0.66	-1	-2.05	6.0851	0.11	-1	-0.11	67.623
6	1,242	-1	-2.02	0.872	5.82	-3	3.333	-0.95	0.35	-1	-1.55	6.5161	0.22	-1	-0.22	66.171
7	1,123	-1	-2.32	0.712	4.46	-3	3.360	-0.92	0.29	-1	-1.26	7.1361	0.12	-1	-0.12	65.825
8	1,013	-1	-2.62	0.562	2.73	-3	3.382	-0.88	0.64	-1	-0.95	7.5765	0.21	-1	-0.21	65.576
9	9.07	-1	-2.92	0.412	7.42	-4	3.409	-0.83	0.78	-1	-0.69	8.0181	0.46	-1	-0.46	65.326
10	8.07	-1	-3.17	0.262	6.05	-5	3.432	-0.79	0.85	-1	-0.45	8.4367	0.77	-1	-0.47	65.119
11	7.03	-1	-3.47	0.112	4.62	-6	3.452	-0.74	0.95	-1	-0.26	8.8176	0.57	-1	-0.48	64.948
12	5.93	-1	-3.77	-0.91	3.11	-7	3.472	-0.69	1.02	-1	-0.07	9.1916	0.37	-1	-0.50	64.825
13	4.93	-1	-4.07	-0.76	1.69	-8	3.492	-0.64	1.12	-1	0.03	9.5716	0.17	-1	-0.53	64.756
14	3.93	-1	-4.37	-0.61	0.25	-9	3.512	-0.59	1.22	-1	0.08	9.9516	0.07	-1	-0.56	64.687
15	2.93	-1	-4.67	-0.46	-0.99	-10	3.532	-0.54	1.32	-1	0.13	10.3316	0.00	-1	-0.59	64.619
16	1.93	-1	-5.07	-0.31	-1.76	-11	3.552	-0.49	1.42	-1	0.18	10.7116	-0.17	-1	-0.62	64.550
17	0.93	-1	-5.47	-0.16	-2.53	-12	3.572	-0.44	1.52	-1	0.23	11.0916	-0.37	-1	-0.65	64.481
18	-0.07	-1	-5.87	-0.01	-3.30	-13	3.592	-0.39	1.62	-1	0.28	11.4716	-0.57	-1	-0.68	64.412
19	-1.93	-1	-6.27	-0.86	-4.07	-14	3.612	-0.34	1.72	-1	0.33	11.8516	-0.77	-1	-0.71	64.343
20	-2.93	-1	-6.67	-1.71	-4.84	-15	3.632	-0.29	1.82	-1	0.38	12.2316	-0.97	-1	-0.74	64.274
21	-3.93	-1	-7.07	-2.56	-5.61	-16	3.652	-0.24	1.92	-1	0.43	12.6116	-1.17	-1	-0.77	64.205
22	-4.93	-1	-7.47	-3.41	-6.38	-17	3.672	-0.19	2.02	-1	0.48	12.9916	-1.37	-1	-0.80	64.136
23	-5.93	-1	-7.87	-4.26	-7.15	-18	3.692	-0.14	2.12	-1	0.53	13.3716	-1.57	-1	-0.83	64.067
24	-6.93	-1	-8.27	-5.11	-7.92	-19	3.712	-0.09	2.22	-1	0.58	13.7516	-1.77	-1	-0.86	63.998
25	-7.93	-1	-8.67	-5.96	-8.69	-20	3.732	-0.04	2.32	-1	0.63	14.1316	-1.97	-1	-0.89	63.929
26	-8.93	-1	-9.07	-6.81	-9.46	-21	3.752	-0.00	2.42	-1	0.68	14.5116	-2.17	-1	-0.92	63.860
27	-9.93	-1	-9.47	-7.66	-10.22	-22	3.772	-0.05	2.52	-1	0.73	14.8916	-2.37	-1	-0.95	63.791
28	-1.93	-1	-9.87	-8.51	-11.02	-23	3.792	-0.00	2.62	-1	0.78	15.2716	-2.57	-1	-0.98	63.722
29	-2.93	-1	-10.27	-9.36	-11.82	-24	3.812	-0.05	2.72	-1	0.83	15.6516	-2.77	-1	-1.01	63.653
30	-3.93	-1	-10.67	-10.21	-12.62	-25	3.832	-0.00	2.82	-1	0.88	16.0316	-2.97	-1	-1.04	63.584
31	-4.93	-1	-11.07	-11.06	-13.42	-26	3.852	-0.05	2.92	-1	0.93	16.4116	-3.17	-1	-1.07	63.515
32	-5.93	-1	-11.47	-11.91	-14.22	-27	3.872	-0.00	3.02	-1	0.98	16.7916	-3.37	-1	-1.10	63.446
33	-6.93	-1	-11.87	-12.76	-15.02	-28	3.892	-0.05	3.12	-1	1.03	17.1716	-3.57	-1	-1.13	63.377
34	-7.93	-1	-12.27	-13.61	-15.82	-29	3.912	-0.00	3.22	-1	1.08	17.5516	-3.77	-1	-1.16	63.308
35	-8.93	-1	-12.67	-14.46	-16.62	-30	3.932	-0.05	3.32	-1	1.13	17.9316	-3.97	-1	-1.19	63.239
36	-9.93	-1	-13.07	-15.31	-17.42	-31	3.952	-0.00	3.42	-1	1.18	18.3116	-4.17	-1	-1.22	63.170
37	-1.93	-1	-13.47	-16.16	-18.22	-32	3.972	-0.05	3.52	-1	1.23	18.6916	-4.37	-1	-1.25	63.101
38	-2.93	-1	-13.87	-17.01	-19.02	-33	3.992	-0.00	3.62	-1	1.28	19.0716	-4.57	-1	-1.28	63.032
39	-3.93	-1	-14.27	-17.86	-19.82	-34	4.012	-0.05	3.72	-1	1.33	19.4516	-4.77	-1	-1.31	62.963
40	-4.93	-1	-14.67	-18.71	-20.62	-35	4.032	-0.00	3.82	-1	1.38	19.8316	-4.97	-1	-1.34	62.894
41	-5.93	-1	-15.07	-19.56	-21.42	-36	4.052	-0.05	3.92	-1	1.43	20.2116	-5.17	-1	-1.37	62.825
42	-6.93	-1	-15.47	-20.41	-22.22	-37	4.072	-0.00	4.02	-1	1.48	20.5916	-5.37	-1	-1.40	62.756
43	-7.93	-1	-15.87	-21.26	-23.02	-38	4.092	-0.05	4.12	-1	1.53	20.9716	-5.57	-1	-1.43	62.687
44	-8.93	-1	-16.27	-22.11	-23.82	-39	4.112	-0.00	4.22	-1	1.58	21.3516	-5.77	-1	-1.46	62.618
45	-9.93	-1	-16.67	-22.96	-24.62	-40	4.132	-0.05	4.32	-1	1.63	21.7316	-5.97	-1	-1.49	62.549
46	-1.93	-1	-17.07	-23.81	-25.42	-41	4.152	-0.00	4.42	-1	1.68	22.1116	-6.17	-1	-1.52	62.480
47	-2.93	-1	-17.47	-24.66	-26.22	-42	4.172	-0.05	4.52	-1	1.73	22.4916	-6.37	-1	-1.55	62.411
48	-3.93	-1	-17.87	-25.51	-27.02	-43	4.192	-0.00	4.62	-1	1.78	22.8716	-6.57	-1	-1.58	62.342
49	-4.93	-1	-18.27	-26.36	-27.82	-44	4.212	-0.05	4.72	-1	1.83	23.2516	-6.77	-1	-1.61	62.273
50	-5.93	-1	-18.67	-27.21	-28.62	-45	4.232	-0.00	4.82	-1	1.88	23.6316	-6.97	-1	-1.64	62.204
51	-6.93	-1	-19.07	-28.06	-29.42	-46	4.252	-0.05	4.92	-1	1.93	24.0116	-7.17	-1	-1.67	62.135
52	-7.93	-1	-19.47	-28.91	-30.22	-47	4.272	-0.00	5.02	-1	1.98	24.3916	-7.37	-1	-1.70	62.066
53	-8.93	-1	-19.87	-29.76	-31.02	-48	4.292	-0.05	5.12	-1	2.03	24.7716	-7.57	-1	-1.73	61.997
54	-9.93	-1	-20.27	-30.61	-31.82	-49	4.312	-0.00	5.22	-1	2.08	25.1516	-7.77	-1	-1.76	61.928
55	-1.93	-1	-20.67	-31.46	-32.62	-50	4.332	-0.05	5.32	-1	2.13	25.5316	-7.97	-1	-1.79	61.859
56	-2.93	-1	-21.07	-32.31	-33.42	-51	4.352	-0.00	5.42	-1	2.18	25.9116	-8.17	-1	-1.82	61.790
57	-3.93	-1	-21.47	-33.16	-34.22	-52	4.372	-0.05	5.52	-1	2.23	26.2916	-8.37	-1	-1.85	61.721
58	-4.93	-1	-21.87	-34.01	-35.02	-53	4.392	-0.00	5.62	-1	2.28	26.6716	-8.57	-1	-1.88	61.652
59	-5.93	-1	-22.27	-34.86	-35.82	-54	4.412	-0.05	5.72	-1	2.33	27.0516	-8.77	-1	-1.91	61.583
60	-6.93	-1	-22.67	-35.71	-36.62	-55	4.432	-0.00	5.82	-1	2.38	27.4316	-8.97	-1	-1.94	61.514
61	-7.93	-1	-23.07	-36.56	-37.42	-56	4.452	-0.05	5.92	-1	2.43	27.8116	-9.17	-1	-1.97	61.445
62	-8.93	-1	-23.47	-37.41	-38.22	-57	4.472	-0.00	6.02	-1	2.48	28.1916	-9.37	-1	-2.00	61.376
63	-9.															



Table 3.2. Parameters at 0.28 Microns

Wavelength (nm)	Altitude (km)	Rayleigh optical thick. (h-a)		Rayleigh optical thick. (h-a)		Aerosol atten. coeff. (km)		Aerosol optical thick. (h-a)		Ozone absorpt. coeff. (km)	Ozone optical thick. (h-a)	Ozone optical thick. (h-a)	Ext. coeff. (km <sup>-1</sup> )	Ext. optical thick. (h-a)	Ext. optical thick. (h-a)	
		V <sub>n</sub>	h	E <sub>r</sub>	E <sub>f</sub>	P <sub>p</sub>	P <sub>f</sub>	B <sub>p</sub>	B <sub>f</sub>	T <sub>p</sub>	T <sub>f</sub>	E <sub>ext</sub>	E <sub>ext</sub>	E <sub>ext</sub>	E <sub>ext</sub>	
2	1.948	-1	.000	1.849	3.80	0	-0.00	2.197	3.197	-1	.200	35.815	4.37	0	.000	40.658
1	1.767	-1	.186	1.460	1.12	0	-1.00	1.990	3.46	-1	.351	35.455	1.65	0	2.744	37.916
2	1.660	-1	.354	1.224	3.32	-1	-2.847	3.350	3.11	-1	.590	35.126	6.03	-1	3.990	36.766
1	1.546	-1	.506	1.139	9.82	-2	-2.847	5.039	-1.18	-1	.129	34.839	5.08	-1	4.522	36.136
4	1.303	-1	.663	1.002	2.90	-2	3.055	-1.01	2.40	-1	1.239	34.586	3.99	-1	4.962	35.690
2	1.171	-1	.767	.879	6.58	-3	3.112	-0.85	2.34	-1	1.567	34.350	3.60	-1	5.365	35.313
4	1.216	-2	1.216	.431	5.42	-3	3.142	-0.55	3.71	-1	2.174	33.042	4.42	-1	7.130	33.528
4	1.096	-2	1.448	.197	4.53	-3	3.167	-0.29	1.05	0	5.562	29.274	1.09	0	11.157	29.501
2	1.414	-2	1.552	.090	2.55	-3	3.187	-0.16	1.76	0	13.305	22.911	1.61	0	17.747	22.911
2	1.373	-3	1.603	.162	7.09	-4	3.196	-.003	1.91	0	12.911	1.92	0	27.509	12.849	
4	1.346	-3	1.636	.009	5.62	-5	3.156	-.000	4.57	-1	3.310	4.54	-1	34.338	2.320	
2	1.633	-4	1.644	.001	1.03	-6	3.167	-.000	1.97	-2	35.806	.010	1.99	-2	40.647	.011
2	1.948	-1	.000	1.845	2.53	0	-0.00	2.299	3.77	-1	.200	35.816	3.13	0	.000	39.760
4	1.767	-1	.186	1.450	8.10	-1	1.509	7.90	3.46	-1	.361	35.455	1.33	0	2.056	37.704
2	1.660	-1	.354	1.231	2.60	-1	1.993	3.06	3.11	-1	.340	35.126	7.31	-1	3.036	36.726
1	1.446	-1	.506	1.138	8.34	-2	2.148	-1.50	2.65	-1	.377	34.839	4.93	-1	3.431	36.128
4	1.303	-1	.663	1.002	2.67	-2	2.198	-.101	2.40	-1	1.230	34.586	3.97	-1	4.071	35.689
2	1.171	-1	.767	.879	8.58	-3	2.214	-0.85	3.67	-1	1.567	34.350	3.60	-1	6.447	35.313
4	1.216	-2	1.216	.431	5.42	-3	2.244	-0.55	3.71	-1	2.174	33.042	4.42	-1	6.232	33.528
4	1.096	-2	1.668	.197	4.53	-3	2.269	-0.29	1.05	0	5.562	29.274	1.09	0	10.259	29.501
2	1.414	-2	1.555	.090	2.55	-3	2.289	-.016	1.74	0	12.911	1.76	0	27.509	12.849	
2	1.373	-3	1.603	.042	7.09	-4	2.296	-.003	1.91	0	12.911	1.92	0	26.911	12.849	
4	1.346	-3	1.636	.009	5.62	-5	2.298	-.000	4.57	-1	3.310	4.54	-1	34.338	2.320	
2	1.633	-4	1.666	.001	1.03	-6	2.299	-.003	1.97	-2	35.806	.010	1.99	-2	40.647	.011
2	1.948	-1	.000	1.845	2.53	0	-0.00	2.299	3.77	-1	.200	35.816	3.13	0	.000	39.760
4	1.767	-1	.186	1.450	8.10	-1	1.509	7.90	3.46	-1	.361	35.455	1.33	0	2.056	37.704
2	1.660	-1	.354	1.231	2.60	-1	1.993	3.06	3.11	-1	.340	35.126	7.31	-1	3.036	36.726
1	1.446	-1	.506	1.138	8.34	-2	2.148	-1.50	2.65	-1	.377	34.839	4.93	-1	3.431	36.128
4	1.303	-1	.663	1.002	2.67	-2	2.198	-.101	2.40	-1	1.230	34.586	3.97	-1	4.071	35.689
2	1.171	-1	.767	.879	8.58	-3	2.214	-0.85	3.67	-1	1.567	34.350	3.60	-1	6.447	35.313
4	1.216	-2	1.216	.431	5.42	-3	2.244	-0.55	3.71	-1	2.174	33.042	4.42	-1	6.232	33.528
4	1.096	-2	1.668	.197	4.53	-3	2.269	-.029	1.05	0	5.562	29.274	1.09	0	10.259	29.501
2	1.414	-2	1.555	.090	2.55	-3	2.289	-.016	1.74	0	12.911	1.76	0	27.509	12.849	
2	1.373	-3	1.603	.042	7.09	-4	2.296	-.003	1.91	0	12.911	1.92	0	26.911	12.849	
4	1.346	-3	1.636	.009	5.62	-5	2.298	-.000	4.57	-1	3.310	4.54	-1	34.338	2.320	
2	1.633	-4	1.666	.001	1.03	-6	2.299	-.000	1.97	-2	35.806	.010	1.99	-2	40.647	.011
2	1.948	-1	.000	1.845	2.53	0	-0.00	2.299	3.77	-1	.200	35.816	3.13	0	.000	39.760
4	1.767	-1	.186	1.450	8.10	-1	1.509	7.90	3.46	-1	.361	35.455	1.33	0	2.056	37.704
2	1.660	-1	.354	1.231	2.60	-1	1.993	3.06	3.11	-1	.340	35.126	7.31	-1	3.036	36.726
1	1.446	-1	.506	1.139	7.62	-2	1.683	-1.65	2.62	-1	.377	34.833	4.93	-1	3.431	36.128
4	1.303	-1	.663	1.002	2.52	-2	1.728	-.100	2.40	-1	1.230	34.586	3.95	-1	3.401	35.689
2	1.171	-1	.767	.879	8.58	-3	1.744	-0.85	3.67	-1	1.567	34.353	3.60	-1	6.447	35.313
4	1.216	-2	1.216	.431	5.42	-3	1.774	-0.55	3.71	-1	2.174	33.042	4.42	-1	6.232	33.528
4	1.096	-2	1.555	.090	2.55	-3	1.799	-.029	1.05	0	5.562	29.274	1.09	0	9.769	29.501
2	1.373	-3	1.603	.042	7.09	-4	2.018	-.016	1.74	0	12.911	1.76	0	16.378	22.911	
4	1.346	-3	1.636	.009	5.62	-5	1.825	-.003	1.91	0	2.310	1.804	1.92	0	26.911	12.849
2	1.633	-4	1.666	.001	1.03	-6	1.828	-.000	4.57	-1	3.310	4.54	-1	36.970	2.320	
2	1.948	-1	.000	1.845	2.53	0	-0.00	2.299	3.77	-1	.200	35.816	3.13	0	.000	39.760
4	1.767	-1	.186	1.450	8.10	-1	1.509	7.90	3.46	-1	.361	35.455	1.33	0	2.056	37.704
2	1.660	-1	.354	1.231	2.60	-1	1.993	3.06	3.11	-1	.340	35.126	7.31	-1	3.036	36.726
1	1.446	-1	.506	1.139	7.62	-2	1.683	-1.65	2.62	-1	.377	34.833	4.93	-1	3.431	36.128
4	1.303	-1	.663	1.002	2.52	-2	1.728	-.100	2.40	-1	1.230	34.586	3.95	-1	3.401	35.689
2	1.171	-1	.767	.879	8.58	-3	1.744	-0.85	3.67	-1	1.567	34.353	3.60	-1	6.447	35.313
4	1.216	-2	1.216	.431	5.42	-3	1.774	-0.55	3.71	-1	2.174	33.042	4.42	-1	6.232	33.528
4	1.096	-2	1.555	.090	2.55	-3	1.799	-.029	1.05	0	5.562	29.274	1.09	0	9.769	29.501
2	1.373	-3	1.603	.042	7.09	-4	2.018	-.016	1.74	0	12.911	1.76	0	16.378	22.911	
4	1.346	-3	1.636	.009	5.62	-5	1.825	-.003	1.91	0	2.310	1.804	1.92	0	26.911	12.849
2	1.633	-4	1.666	.001	1.03	-6	1.828	-.000	4.57	-1	3.310	4.54	-1	36.970	2.320	
2	1.948	-1	.000	1.845	2.53	0	-0.00	2.299	3.77	-1	.200	35.816	3.13	0	.000	39.760
4	1.767	-1	.186	1.450	8.10	-1	1.509	7.90	3.46	-1	.361	35.455	1.33	0	2.056	37.704
2	1.660	-1	.354	1.231	2.60	-1	1.993	3.06	3.11	-1	.340	35.126	7.31	-1	3.036	36.726
1	1.446	-1	.506	1.139	7.62	-2	1.683	-1.65	2.62	-1	.377	34.833	4.93	-1	3.431	36.128
4	1.303	-1	.663	1.002	2.52	-2	1.728	-.100	2.40	-1	1.230	34.586	3.95	-1	3.401	35.689
2	1.171	-1	.767	.879	8.58	-3	1.744	-0.85	3.67	-1	1.567	34.353	3.60	-1	6.447	35.313
4	1.216	-2	1.216	.431	5.42	-3	1.774	-0.55	3.71	-1	2.174	33.042	4.42	-1	6.232	33.528
4	1.096	-2	1.555	.090	2.55	-3	1.799	-.029	1.05							



Table 3.3. Parameters at 0.30 Microns

Nbr.	Alt. Age (km)	Rayleigh		Rayleigh		Aerosol		Aerosol		Ozone		Ozone		Ext.		Ext.	
		optical coeff. (km <sup>-1</sup> )	atten. coeff. (km <sup>-1</sup> )	optical thick. (km <sup>-1</sup> )	atten. coeff. (km <sup>-1</sup> )	optical thick. (0-h)	p	'p	p	'p	thick. (km <sup>-1</sup> )	thick. (0-h)	thick. (h-m)	coeff. (km <sup>-1</sup> )	optical thick. (0-h)	ext. coeff. (km <sup>-1</sup> )	optical thick. (0-h)
v <sub>1</sub>	h	b	r	r'	r''	b'	r'	r''	b''	r''	r'''	b'''	r'''	b'''	r'''	b'''	r'''
2	1	1.446	-1	-0.00	1.222	3.58	0	.000	3.023	3.63	-2	.00	3.413	3.76	0	.000	7.657
	2	1.312	-1	-1.38	1.086	1.06	0	2.013	.950	3.29	-2	.234	3.378	1.23	0	2.255	5.412
	3	1.184	-1	-2.63	.959	3.16	-1	2.089	.335	2.96	-2	.066	3.367	4.64	-1	3.017	4.640
	4	1.073	-1	-3.76	.866	9.37	-2	2.071	.152	2.52	-2	.193	3.320	2.26	-1	3.340	4.317
	5	9.672	-2	-4.77	.766	2.78	-2	2.925	.098	2.28	-2	.117	3.295	1.67	-1	3.520	4.137
	6	8.693	-2	-269	.652	8.26	-3	2.942	.081	2.23	-2	.140	3.273	1.18	-1	3.850	4.007
3	1	4.464	-2	-901	.520	5.22	-3	2.970	.053	3.53	-2	.264	3.164	8.96	-2	4.136	3.521
	2	4.075	-2	-1.075	.467	4.36	-3	2.995	.026	1.00	-1	.523	2.789	1.28	-1	6.693	2.964
	3	3.050	-2	-1.050	.407	2.45	-3	3.014	.009	1.66	-1	.239	2.173	1.79	-1	5.907	2.250
	4	2.990	-2	-1.191	.031	6.83	-4	3.020	.003	1.82	-1	.219	1.220	1.87	-1	6.403	1.254
	5	2.212	-2	-1.214	.007	5.41	-3	3.023	.000	4.35	-2	.319	2.220	4.46	-2	7.630	.227
	6	1.217	-2	-1.221	.001	9.91	-7	3.023	.000	1.88	-3	.412	.001	2.00	-3	7.655	.002
4	1	1.646	-1	-0.00	1.222	2.38	0	.000	2.175	3.60	-2	.00	3.413	2.56	0	.000	6.809
	2	1.112	-1	-1.38	1.086	7.66	-1	1.624	.751	3.29	-2	.334	3.378	9.31	-1	1.596	5.101
	3	1.188	-1	-2.63	.959	2.47	-1	1.082	.292	2.96	-2	.066	3.347	3.95	-1	2.211	4.598
	4	1.075	-1	-3.76	.866	7.96	-2	2.030	.146	2.52	-2	.193	3.320	2.12	-1	2.499	4.310
	5	9.672	-2	-4.77	.766	2.56	-2	2.078	.097	2.28	-2	.117	3.295	1.45	-1	2.672	4.136
	6	8.693	-2	-269	.652	8.26	-3	2.053	.081	2.23	-2	.140	3.273	1.18	-1	3.802	4.007
5	1	4.464	-2	-901	.520	5.22	-3	2.970	.053	3.53	-2	.264	3.164	8.96	-2	3.288	3.521
	2	4.075	-2	-1.075	.467	4.36	-3	2.995	.026	1.00	-1	.523	2.789	1.28	-1	6.644	2.964
	3	3.050	-2	-1.050	.407	2.45	-3	3.014	.009	1.66	-1	.239	2.173	1.79	-1	5.959	2.250
	4	2.990	-2	-1.191	.031	6.83	-4	3.020	.003	1.82	-1	.319	1.220	1.87	-1	6.555	1.254
	5	2.212	-2	-1.214	.007	5.41	-3	3.023	.000	4.35	-2	.319	2.220	4.46	-2	6.581	.227
	6	1.217	-2	-1.221	.001	9.91	-7	3.023	.000	1.88	-3	.412	.001	2.00	-3	6.807	.002
6	1	1.646	-1	-0.00	1.222	1.78	0	.000	1.730	3.60	-2	.00	3.413	1.96	0	.000	6.364
	2	1.312	-1	-1.38	1.086	6.08	-1	1.091	.639	3.29	-2	.334	3.378	7.72	-1	1.263	5.101
	3	1.188	-1	-2.63	.959	2.08	-1	1.463	.267	2.96	-2	.066	3.347	3.95	-1	1.792	4.598
	4	1.075	-1	-3.76	.866	7.09	-2	1.591	.140	2.52	-2	.193	3.320	2.03	-1	2.059	4.305
	5	9.672	-2	-4.77	.766	2.42	-2	1.634	.096	2.28	-2	.117	3.295	1.44	-1	2.229	4.136
	6	8.693	-2	-269	.652	8.26	-3	1.649	.081	2.23	-2	.140	3.273	1.18	-1	2.358	4.007
7	1	4.464	-2	-901	.520	5.22	-3	2.970	.053	3.53	-2	.264	3.164	8.96	-2	3.288	3.521
	2	4.075	-2	-1.075	.467	4.36	-3	2.995	.026	1.00	-1	.523	2.789	1.28	-1	6.644	2.964
	3	3.050	-2	-1.050	.407	2.45	-3	3.014	.009	1.66	-1	.319	2.173	1.79	-1	6.559	2.250
	4	2.990	-2	-1.191	.031	6.83	-4	3.020	.003	1.82	-1	.319	1.220	1.87	-1	6.581	.227
	5	2.212	-2	-1.214	.007	5.41	-3	3.023	.000	4.35	-2	.319	2.220	4.46	-2	6.137	.227
	6	1.217	-2	-1.221	.001	9.91	-7	3.023	.000	1.88	-3	.412	.001	2.00	-3	6.362	.002

<b>2</b>	<b>1.446 -1</b>	<b>.000</b>	<b>1.222</b>	<b>1.18 0</b>	<b>.000</b>	<b>1.262</b>	<b>3.63 -2</b>	<b>.000</b>	<b>3.413</b>	<b>1.36 0</b>	<b>.000</b>	<b>5.896</b>
1	1.312 -1	-1.18	1.086	1.37 -1	-748	1.62 -1	1.025	-236	2.96 -2	-3.29	1.31 -1	6.976
2	1.188 -1	-263	1.959	1.62 -1	1.025	1.96 -1	1.124	-134	2.52 -2	-2.96	1.353	4.562
3	1.073 -1	-376	1.866	6.01 -2	1.124	1.166	1.166	-134	2.52 -2	-2.96	1.353	4.562
4	9.672 -2	-477	746	2.23 -2	2.23	1.166	1.166	-134	2.28 -2	-2.28	1.353	4.562
5	8.693 -2	-569	1.652	8.26 -3	1.160	1.160	1.160	-134	2.23 -2	-2.23	1.353	4.562
6	8.881 -2	-901	1.075	1.229	1.229	1.229	1.229	-134	2.23 -2	-2.23	1.353	4.562
7	1.2749 -2	1.075	1.167	5.36 -3	1.233	1.233	1.233	-134	2.23 -2	-2.23	1.353	4.562
8	1.050 -2	1.154	1.067	2.45 -3	1.252	1.252	1.252	-134	2.23 -2	-2.23	1.353	4.562
9	7.32 -3	1.191	1.214	1.031	6.83 -4	1.259	1.261	-134	2.23 -2	-2.23	1.353	4.562
10	9.990 -4	1.221	1.212	1.001	5.41 -5	1.261	1.261	-134	2.23 -2	-2.23	1.353	4.562
11	1.212 -4	1.221	1.221	1.001	9.91 -7	1.262	1.262	-134	2.23 -2	-2.23	1.353	4.562
12	1.446 -1	1.000	1.222	8.77 -1	-600	1.013	1.013	-134	3.60 -2	-3.29	1.353	4.562
13	1.312 -1	-138	1.086	3.45 -1	-570	1.36 -1	755	-218	2.96 -2	-3.29	1.353	4.562
14	1.188 -1	-263	1.959	5.36 -1	-755	1.36 -1	883	-130	2.52 -2	-2.96	1.353	4.562
15	1.073 -1	-376	1.866	5.34 -2	-883	1.10 -2	918	-130	2.28 -2	-2.28	1.353	4.562
16	9.672 -2	-477	764	2.10 -2	-764	1.10 -2	931	-130	2.23 -2	-2.23	1.353	4.562
17	8.693 -2	-569	1.652	8.26 -3	-569	1.10 -3	931	-130	2.23 -2	-2.23	1.353	4.562
18	8.881 -2	-901	1.075	1.229	-321	1.229	1.229	-134	2.23 -2	-2.23	1.353	4.562
19	2.299 -2	1.075	1.154	1.067	2.45 -3	1.36 -3	986	-134	1.00 -1	-1.00	1.353	4.562
20	1.050 -2	1.154	1.191	1.031	6.83 -4	2.45 -3	1.003	-134	1.00 -1	-1.00	1.353	4.562
21	6.732 -3	1.214	1.221	1.007	5.41 -5	1.012	1.012	-134	1.00 -1	-1.00	1.353	4.562
22	9.990 -4	1.221	1.212	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
23	1.212 -4	1.221	1.221	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
24	1.446 -1	1.000	1.222	6.98 -1	-600	1.013	1.013	-134	3.60 -2	-3.29	1.353	4.562
25	1.312 -1	-138	1.086	3.45 -1	-570	1.36 -1	883	-130	2.96 -2	-3.29	1.353	4.562
26	1.188 -1	-263	1.959	1.18 -1	-654	1.36 -1	918	-130	2.52 -2	-2.96	1.353	4.562
27	1.073 -1	-376	1.866	4.87 -2	-732	1.10 -2	764	-130	2.28 -2	-2.28	1.353	4.562
28	9.672 -2	-477	764	2.01 -2	-764	1.10 -2	764	-130	2.23 -2	-2.23	1.353	4.562
29	8.693 -2	-569	1.652	8.26 -3	-569	1.10 -3	778	-134	2.23 -2	-2.23	1.353	4.562
30	8.881 -2	-901	1.075	1.229	-320	1.229	1.229	-134	2.23 -2	-2.23	1.353	4.562
31	2.299 -2	1.075	1.154	1.067	2.45 -3	1.36 -3	831	-134	1.00 -1	-1.00	1.353	4.562
32	1.050 -2	1.154	1.191	1.031	6.83 -4	2.45 -3	1.009	-134	1.00 -1	-1.00	1.353	4.562
33	6.732 -3	1.214	1.221	1.007	5.41 -5	1.012	1.012	-134	1.00 -1	-1.00	1.353	4.562
34	9.990 -4	1.221	1.212	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
35	1.212 -4	1.221	1.221	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
36	1.446 -1	1.000	1.222	6.98 -1	-600	1.013	1.013	-134	3.60 -2	-3.29	1.353	4.562
37	1.312 -1	-138	1.086	3.45 -1	-570	1.36 -1	883	-130	2.96 -2	-3.29	1.353	4.562
38	1.188 -1	-263	1.959	1.18 -1	-654	1.36 -1	918	-130	2.52 -2	-2.96	1.353	4.562
39	1.073 -1	-376	1.866	4.87 -2	-732	1.10 -2	764	-130	2.28 -2	-2.28	1.353	4.562
40	9.672 -2	-477	764	2.01 -2	-764	1.10 -2	764	-130	2.23 -2	-2.23	1.353	4.562
41	8.693 -2	-569	1.652	8.26 -3	-569	1.10 -3	778	-134	2.23 -2	-2.23	1.353	4.562
42	8.881 -2	-901	1.075	1.229	-320	1.229	1.229	-134	2.23 -2	-2.23	1.353	4.562
43	2.299 -2	1.075	1.154	1.067	2.45 -3	1.36 -3	831	-134	1.00 -1	-1.00	1.353	4.562
44	1.050 -2	1.154	1.191	1.031	6.83 -4	2.45 -3	1.009	-134	1.00 -1	-1.00	1.353	4.562
45	6.732 -3	1.214	1.221	1.007	5.41 -5	1.012	1.012	-134	1.00 -1	-1.00	1.353	4.562
46	9.990 -4	1.221	1.212	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
47	1.212 -4	1.221	1.221	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
48	1.446 -1	1.000	1.222	6.98 -1	-600	1.013	1.013	-134	3.60 -2	-3.29	1.353	4.562
49	1.312 -1	-138	1.086	3.45 -1	-570	1.36 -1	883	-130	2.96 -2	-3.29	1.353	4.562
50	1.188 -1	-263	1.959	1.18 -1	-654	1.36 -1	918	-130	2.52 -2	-2.96	1.353	4.562
51	1.073 -1	-376	1.866	4.87 -2	-732	1.10 -2	764	-130	2.28 -2	-2.28	1.353	4.562
52	9.672 -2	-477	764	2.01 -2	-764	1.10 -2	764	-130	2.23 -2	-2.23	1.353	4.562
53	8.693 -2	-569	1.652	8.26 -3	-569	1.10 -3	778	-134	2.23 -2	-2.23	1.353	4.562
54	8.881 -2	-901	1.075	1.229	-320	1.229	1.229	-134	2.23 -2	-2.23	1.353	4.562
55	2.299 -2	1.075	1.154	1.067	2.45 -3	1.36 -3	831	-134	1.00 -1	-1.00	1.353	4.562
56	1.050 -2	1.154	1.191	1.031	6.83 -4	2.45 -3	1.009	-134	1.00 -1	-1.00	1.353	4.562
57	6.732 -3	1.214	1.221	1.007	5.41 -5	1.012	1.012	-134	1.00 -1	-1.00	1.353	4.562
58	9.990 -4	1.221	1.212	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
59	1.212 -4	1.221	1.221	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
60	1.446 -1	1.000	1.222	6.98 -1	-600	1.013	1.013	-134	3.60 -2	-3.29	1.353	4.562
61	1.312 -1	-138	1.086	3.45 -1	-570	1.36 -1	883	-130	2.96 -2	-3.29	1.353	4.562
62	1.188 -1	-263	1.959	1.18 -1	-654	1.36 -1	918	-130	2.52 -2	-2.96	1.353	4.562
63	1.073 -1	-376	1.866	4.87 -2	-732	1.10 -2	764	-130	2.28 -2	-2.28	1.353	4.562
64	9.672 -2	-477	764	2.01 -2	-764	1.10 -2	764	-130	2.23 -2	-2.23	1.353	4.562
65	8.693 -2	-569	1.652	8.26 -3	-569	1.10 -3	778	-134	2.23 -2	-2.23	1.353	4.562
66	8.881 -2	-901	1.075	1.229	-320	1.229	1.229	-134	2.23 -2	-2.23	1.353	4.562
67	2.299 -2	1.075	1.154	1.067	2.45 -3	1.36 -3	831	-134	1.00 -1	-1.00	1.353	4.562
68	1.050 -2	1.154	1.191	1.031	6.83 -4	2.45 -3	1.009	-134	1.00 -1	-1.00	1.353	4.562
69	6.732 -3	1.214	1.221	1.007	5.41 -5	1.012	1.012	-134	1.00 -1	-1.00	1.353	4.562
70	9.990 -4	1.221	1.212	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
71	1.212 -4	1.221	1.221	1.001	9.91 -7	1.013	1.013	-134	1.00 -1	-1.00	1.353	4.562
72	1.446 -1	1.000	1.222	6.98 -1	-600	1.013	1.013	-134	3.60 -2	-3.29	1.353	4.562
73	1.312 -1	-138	1.086	3.45 -1	-570	1.36 -1	883	-130	2.96 -2	-3.29	1.353	4.562
74	1.188 -1	-263	1.959	1.18 -1	-654	1.36 -1	918	-130	2.52 -2	-2.96	1.353	4.562
75	1.073 -1	-376	1.866	4.87 -2	-732	1.10 -2	764	-130	2.28 -2	-2.28	1.353	4.562
76	9.672 -2	-477	764	2.01 -2	-764	1.10 -2	764	-130	2.23 -2	-2.23	1.353	4.562
77	8.693 -2	-569	1.652	8.26 -3	-569	1.10 -3	778	-134	2.23 -2	-2.23	1.353	4.562
78	8.881 -2	-901	1.075	1.229	-320	1.229	1.229	-134	2.23 -2	-2.23	1.353	4.562

Table 3.4. Parameters at 0.32 Microns

Table 3.2. Parameters at 0.32 MICRONS									
Alt.	Alt. Rise	Rayleigh attenu- coeff. (km <sup>-1</sup> )	Rayleigh optical thick. (0-h)	Rayleigh		Aerosol		Ozone	
				V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>	V <sub>5</sub>	V <sub>6</sub>
2	1	1.098	-1	.000	.927	3.356	.0	.660	2.849
	1	9.362	-2	.105	.823	1.000	0	1.949	2.93
	2	9.020	-2	.199	.726	2.99	-1	2.530	.319
	3	8.148	-2	.285	.642	4.92	-2	2.04	.146
	4	7.362	-2	.362	.555	2.65	-2	2.755	.096
	5	6.599	-2	.432	.479	7.94	-3	2.711	.078
	6	4.705	-2	.684	.263	5.02	-3	2.199	.051
	7	1.743	-2	.816	.171	4.19	-3	2.222	.027
	8	9.667	-4	.876	.051	2.660	-3	2.660	.009
	9	3.542	-3	.904	.026	6.57	-4	2.846	.003
3	1	7.246	-4	.922	.005	5.21	-5	2.849	.000
	2	6.202	-5	.927	.001	9.53	-7	2.849	.000
	3	1.098	-4	.000	.927	2.25	0	.060	2.050
	4	9.362	-2	.105	.823	7.23	-1	1.338	.712
	5	9.020	-2	.199	.726	2.36	-1	1.712	.279
	6	8.148	-2	.285	.642	1.58	-2	1.912	.138
	7	7.362	-2	.362	.555	2.47	-2	1.957	.093
	8	6.599	-2	.432	.479	7.94	-3	2.078	.078
	9	3.705	-2	.684	.263	5.02	-3	2.050	.051
	10	1.743	-2	.816	.171	4.19	-3	2.050	.023
4	1	7.467	-3	.876	.051	2.36	-4	2.041	.027
	2	6.592	-4	.904	.026	6.57	-5	2.048	.003
	3	2.746	-4	.922	.005	5.21	-5	2.050	.000
	4	9.202	-5	.927	.001	9.53	-7	2.050	.000
	5	1.098	-1	.000	.927	1.67	0	.060	1.632
	6	9.362	-2	.105	.823	5.73	-1	1.026	.607
	7	9.020	-2	.199	.726	9.97	-1	1.377	.279
	8	8.148	-2	.285	.642	6.75	-2	1.458	.138
	9	7.362	-2	.362	.555	2.31	-2	1.540	.093
	10	6.599	-2	.432	.479	7.94	-3	2.050	.051
5	1	3.705	-2	.684	.263	5.02	-3	1.562	.051
	2	1.743	-2	.816	.171	4.19	-3	2.041	.027
	3	7.467	-3	.904	.005	3.36	-4	1.623	.009
	4	9.202	-4	.922	.005	5.21	-5	1.629	.003
	5	1.098	-5	.927	.001	9.53	-7	1.632	.000
	6	9.362	-2	.105	.823	1.67	0	.060	1.632
	7	9.020	-2	.199	.726	4.78	-1	.833	.537
	8	8.148	-2	.285	.642	1.72	-1	1.132	.238
	9	7.362	-2	.362	.555	6.16	-2	1.239	.131
	10	6.599	-2	.432	.479	2.62	-2	1.278	.092

3	1-0.98 -1	.927	1-11 0	.060	1.191	3-20 -3	.200	.303	1-22 0	.000	2-422
4	9-9.82 -2	-105	+.823	4-12 -1	-103	-488	-2.93 -3	-303	5-15 -1	.811	1-611
5	9-0.20 -2	-199	-728	1-59 -1	-985	-226	2.63 -3	-306	-298	2-44 -1	1-170
6	8-1.68 -2	-285	-642	5-12 -2	-1.063	-128	2.26 -3	-308	-295	1-61 -1	1-251
7	7-3.62 -2	-362	-565	2-13 -2	-1.059	-92	2.03 -3	-310	-293	9-68 -2	1-066
8	6-5.99 -2	-632	-495	7-34 -3	-1.113	-178	1.98 -3	-312	-291	7-59 -2	1-950
9	10-3.705 -2	-684	-263	5-62 -3	-1.140	-151	3.14 -3	-324	-280	6-52 -2	.865
10	15-1.765 -2	-816	-111	6-19 -3	-1.164	-27	8.93 -3	-327	-248	3-56 -2	1-648
11	20-7.967 -3	-876	-551	2-36 -3	-1.182	-009	1-47 -2	-330	-255	2-335	1-387
12	22-3.582 -3	-906	-224	6-27 -4	-1.188	-62	1-62 -2	-332	-193	2-51 -2	2-168
13	35-7.586 -4	-922	-005	5-21 -5	-1.191	-000	3-87 -3	-334	-108	2-04 -2	2-287
14	50-9.202 -5	-927	-001	9-53 -7	-1.191	-000	1-67 -4	-336	-020	4-68 -3	2-397
15	9-1.098 -1	.000	-927	8-23 -1	.000	-956	3-20 -3	.200	.303	9-36 -1	.000
16	4-9.982 -2	-105	-823	3-25 -1	-536	-420	2.93 -3	-303	-298	4-28 -1	1-543
17	3-8.020 -2	-199	-728	1-59 -1	-748	-208	2.63 -3	-306	-296	2-21 -1	1-953
18	4-7.382 -2	-285	-642	5-08 -2	-832	-125	2.24 -3	-308	-295	1-35 -1	1-062
19	5-6.599 -2	-362	-565	2-01 -2	-865	-091	2.03 -3	-310	-293	7-59 -2	1-238
20	10-3.705 -2	-632	-495	7-96 -3	-718	-078	1.98 -3	-312	-291	7-59 -2	.949
21	15-1.765 -2	-816	-111	6-19 -3	-906	-051	3.14 -3	-324	-280	1-323	.865
22	20-7.967 -3	-876	-551	2-36 -3	-929	-027	8.93 -3	-327	-248	3-56 -2	1-614
23	25-3.582 -3	-906	-224	6-27 -4	-947	-009	1-47 -2	-330	-193	2-51 -2	1-387
24	35-7.586 -4	-922	-005	5-21 -5	-956	-000	3-87 -3	-334	-108	2-04 -2	1-934
25	50-9.202 -5	-927	-001	9-53 -7	-956	-000	1-67 -4	-336	-020	4-68 -3	2-397
26	0 1-0.98 -1	.000	-927	8-23 -1	.000	-956	3-20 -3	.200	.303	9-36 -1	.000
27	1-9.982 -2	-105	-823	3-25 -1	-536	-420	2.93 -3	-303	-298	4-28 -1	1-543
28	2-8.148 -2	-199	-728	1-59 -1	-748	-208	2.63 -3	-306	-296	2-21 -1	1-953
29	4-7.382 -2	-285	-642	5-08 -2	-832	-125	2.24 -3	-308	-295	1-35 -1	1-062
30	5-6.599 -2	-362	-565	2-01 -2	-865	-091	2.03 -3	-310	-293	7-59 -2	1-238
31	10-3.705 -2	-632	-495	7-96 -3	-721	-091	2.03 -3	-312	-291	7-59 -2	.949
32	15-1.765 -2	-816	-111	6-19 -3	-733	-078	1.98 -3	-312	-291	7-59 -2	.865
33	20-7.967 -3	-876	-551	2-36 -3	-761	-051	3.14 -3	-324	-280	3-56 -2	1-614
34	25-3.582 -3	-906	-224	6-27 -4	-784	-027	8.93 -3	-327	-248	3-56 -2	1-574
35	35-7.586 -4	-922	-005	5-21 -5	-803	-009	1-47 -2	-330	-193	2-51 -2	1-387
36	50-9.202 -5	-927	-001	9-53 -7	-803	-000	1-67 -4	-334	-108	2-04 -2	1-789
37	0 1-0.98 -1	.000	-927	8-23 -1	.000	-812	3-20 -3	.200	.303	7-68 -1	.000
38	1-9.982 -2	-105	-823	2-71 -1	-635	-376	2.93 -3	-303	-300	3-76 -1	1-543
39	2-8.148 -2	-199	-728	1-59 -1	-615	-196	2.63 -3	-306	-298	2-21 -1	1-953
40	4-7.382 -2	-285	-642	5-08 -2	-690	-122	2.24 -3	-308	-295	1-35 -1	1-062
41	5-6.599 -2	-362	-565	2-01 -2	-765	-091	2.03 -3	-310	-293	7-59 -2	1-238
42	10-3.705 -2	-632	-495	7-96 -3	-733	-078	1.98 -3	-312	-291	7-59 -2	.949
43	15-1.765 -2	-816	-111	6-19 -3	-761	-051	3.14 -3	-324	-280	3-56 -2	1-614
44	20-7.967 -3	-876	-551	2-36 -3	-784	-027	8.93 -3	-327	-248	3-56 -2	1-574
45	25-3.582 -3	-906	-224	6-27 -4	-803	-009	1-47 -2	-330	-193	2-51 -2	1-387
46	35-7.586 -4	-922	-005	5-21 -5	-812	-000	1-67 -4	-334	-108	2-04 -2	1-789
47	50-9.202 -5	-927	-001	9-53 -7	-812	-000	1-67 -4	-336	-020	4-68 -3	2-397
48	0 1-0.98 -1	.000	-927	8-23 -1	.000	-812	3-20 -3	.200	.303	7-68 -1	.000
49	1-9.982 -2	-105	-823	2-18 -1	-640	-332	2.93 -3	-303	-300	3-76 -1	1-543
50	2-8.148 -2	-199	-728	1-59 -2	-648	-186	2.63 -3	-306	-298	1-88 -1	1-611
51	4-7.382 -2	-285	-642	5-16 -2	-553	-119	2.24 -3	-308	-295	1-25 -1	1-056
52	5-6.599 -2	-362	-565	1-82 -2	-581	-091	2.03 -3	-310	-293	9-36 -2	.949
53	10-3.705 -2	-632	-495	7-96 -3	-594	-078	1-98 -3	-312	-291	7-59 -2	1-056
54	15-1.765 -2	-816	-111	6-19 -3	-602	-051	3.14 -3	-324	-280	3-56 -2	1-611
55	20-7.967 -3	-876	-551	2-36 -3	-609	-027	8.93 -3	-327	-248	3-56 -2	1-574
56	25-3.582 -3	-906	-224	6-27 -4	-612	-009	1-47 -2	-330	-193	2-51 -2	1-387
57	35-7.586 -4	-922	-005	5-21 -5	-612	-000	1-67 -4	-334	-108	2-04 -2	1-789
58	50-9.202 -5	-927	-001	9-53 -7	-612	-000	1-67 -4	-336	-020	4-68 -3	2-397
59	0 1-0.98 -1	.000	-927	8-23 -1	.000	-672	3-20 -3	.200	.303	6-13 -1	.000
60	1-9.982 -2	-105	-823	2-18 -1	-640	-332	2.93 -3	-303	-300	3-76 -1	1-543
61	2-8.148 -2	-199	-728	1-59 -2	-648	-186	2.63 -3	-306	-298	1-88 -1	1-611
62	4-7.382 -2	-285	-642	5-16 -2	-553	-119	2.24 -3	-308	-295	1-25 -1	1-056
63	5-6.599 -2	-362	-565	1-82 -2	-581	-091	2.03 -3	-310	-293	9-36 -2	.949
64	10-3.705 -2	-632	-495	7-96 -3	-594	-078	1-98 -3	-312	-291	7-59 -2	1-056
65	15-1.765 -2	-816	-111	6-19 -3	-602	-051	3.14 -3	-324	-280	3-56 -2	1-611
66	20-7.967 -3	-876	-551	2-36 -3	-609	-027	8.93 -3	-327	-248	3-56 -2	1-574
67	25-3.582 -3	-906	-224	6-27 -4	-612	-009	1-47 -2	-330	-193	2-51 -2	1-387
68	35-7.586 -4	-922	-005	5-21 -5	-612	-000	1-67 -4	-334	-108	2-04 -2	1-789
69	50-9.202 -5	-927	-001	9-53 -7	-612	-000	1-67 -4	-336	-020	4-68 -3	2-397

Table 3.5. Parameters at 0.34 Microns

Part.	Alt. Type (km)	Aerosol atten. coeff; (km <sup>-1</sup> )	Rayleigh optical thick. (0-h)	Rayleigh optical thick. (h-h)	Aerosol optical thick. (0-h)	Aerosol optical thick. (h-h)	Ozone			Ext. coeff. (km <sup>-1</sup> )	Ext. optical thick. (0-h)	Ext. optical thick. (h-h)
							V <sub>n</sub>	b <sub>p</sub>	r' <sub>p</sub>	b <sub>3</sub>	r' <sub>3</sub>	b <sub>ext</sub>
3	8.492 -2	-0.000	.717	3.-14 0	-0.000	2.-675	2.-28 -4	-0.000	-0.022	3.-22 0	-0.000	3.-414
4	7.707 -2	-0.001	.636	9.-41 -1	1.-622	.631	2.-09 -4	-0.000	-0.021	1.-02 0	1.-905	1.-509
5	6.978 -2	-0.154	.563	2.-82 -1	2.-372	.303	1.-88 -4	-0.000	-0.021	3.-52 -1	2.-526	.886
6	6.303 -2	-0.221	.497	8.-47 -2	2.-536	.139	1.-60 -4	-0.001	-0.021	1.-44 -1	2.-757	.657
7	5.660 -2	-0.280	.437	5.-54 -2	2.-565	.090	1.-45 -4	-0.001	-0.021	8.-24 -2	2.-866	.548
8	5.103 -2	-0.334	.383	7.-63 -3	2.-610	.075	1.-41 -4	-0.001	-0.021	5.-88 -2	2.-935	.619
9	4.667 -2	-0.329	.348	4.-82 -3	2.-627	.059	2.-24 -4	-0.002	-0.020	3.-37 -2	3.-157	.257
10	4.1350 -2	-0.631	.046	6.-03 -3	2.-649	.026	6.-36 -4	-0.004	-0.018	1.-82 -2	3.-284	.130
11	3.666 -3	-0.678	.039	2.-24 -3	2.-646	.009	1.-05 -3	-0.008	-0.014	9.-44 -3	3.-352	.062
12	2.774 -3	-0.699	.018	6.-30 -4	2.-612	.003	1.-15 -3	-0.014	-0.008	4.-96 -3	3.-385	.029
13	5.-667 -4	-0.713	.004	5.-00 -5	2.-625	.000	2.-76 -4	-0.020	-0.001	9.-13 -4	3.-408	.006
14	7.119 -5	-0.717	.001	9.-14 -7	2.-675	.000	1.-19 -5	-0.022	.000	8.-40 -5	3.-413	.001
15	8.492 -2	-0.000	.717	2.-08 0	-0.000	1.-926	2.-28 -4	-0.000	-0.022	2.-17 0	-0.000	2.-665
16	7.707 -2	-0.001	.636	6.-79 -1	1.-253	.613	2.-09 -4	-0.000	-0.021	7.-56 -1	1.-334	1.-331
17	6.978 -2	-0.154	.563	2.-21 -1	1.-641	.265	1.-88 -4	-0.000	-0.021	2.-91 -1	1.-816	.880
18	6.303 -2	-0.221	.497	7.-19 -2	1.-754	.133	1.-60 -4	-0.001	-0.021	1.-35 -1	2.-015	.650
19	5.-660 -2	-0.280	.437	2.-34 -2	1.-837	.059	1.-45 -4	-0.001	-0.021	9.-06 -1	2.-118	.547
20	5.103 -2	-0.334	.383	7.-43 -3	1.-851	.015	1.-41 -4	-0.001	-0.021	5.-88 -2	2.-186	.419
21	4.667 -2	-0.329	.348	4.-82 -3	1.-878	.059	2.-24 -4	-0.002	-0.020	3.-37 -2	2.-409	.257
22	4.1350 -2	-0.631	.046	6.-03 -3	1.-900	.026	6.-36 -4	-0.004	-0.016	1.-82 -2	2.-525	.130
23	3.666 -3	-0.678	.039	2.-26 -3	1.-918	.009	1.-15 -3	-0.008	-0.014	9.-48 -3	2.-603	.062
24	2.774 -3	-0.699	.004	6.-30 -4	1.-924	.003	1.-15 -3	-0.014	-0.008	4.-96 -3	2.-637	.029
25	5.-667 -4	-0.713	.001	5.-00 -5	1.-926	.000	2.-76 -4	-0.020	.001	9.-13 -4	2.-660	.006
26	7.119 -5	-0.717	.001	9.-14 -7	1.-926	.000	1.-19 -5	-0.022	.000	8.-40 -5	2.-665	.001
27	8.492 -2	-0.000	.717	1.-56 0	-0.000	1.-534	2.-28 -4	-0.000	-0.022	1.-65 0	-0.000	2.-273
28	7.707 -2	-0.001	.636	5.-38 -1	9.-60	.576	2.-09 -4	-0.000	-0.021	6.-15 0	1.-041	1.-232
29	6.978 -2	-0.154	.563	1.-46 -1	1.-291	.243	1.-88 -4	-0.000	-0.021	2.-56 -1	1.-44 -6	.827
30	6.303 -2	-0.221	.497	6.-41 -2	1.-405	.128	1.-60 -4	-0.001	-0.021	1.-27 -1	1.-627	.646
31	5.-660 -2	-0.280	.437	2.-21 -2	1.-445	.089	1.-45 -4	-0.001	-0.021	7.-90 -1	1.-726	.419
32	5.105 -2	-0.334	.383	7.-63 -3	1.-459	.075	1.-41 -4	-0.001	-0.021	5.-88 -2	1.-794	.257
33	4.667 -2	-0.329	.348	4.-82 -3	1.-485	.049	2.-24 -4	-0.002	-0.020	3.-37 -2	2.-016	.130
34	4.1350 -2	-0.631	.046	6.-03 -3	1.-508	.026	6.-36 -4	-0.004	-0.016	1.-82 -2	2.-163	.062
35	3.666 -3	-0.678	.039	2.-26 -3	1.-525	.009	1.-15 -3	-0.008	-0.014	9.-48 -3	2.-211	.029
36	2.774 -3	-0.699	.004	6.-30 -4	1.-531	.003	1.-15 -3	-0.008	-0.014	4.-96 -3	2.-244	.006
37	5.-667 -4	-0.713	.001	5.-00 -5	1.-536	.000	2.-76 -4	-0.020	.001	9.-13 -4	2.-267	.006
38	7.119 -5	-0.717	.001	9.-14 -7	1.-534	.000	1.-19 -5	-0.022	.000	8.-40 -5	2.-272	.001
39	8.492 -2	-0.000	.717	1.-24 0	-0.000	1.-288	2.-28 -4	-0.000	-0.022	1.-33 0	-0.000	2.-027
40	7.707 -2	-0.001	.636	4.-49 -1	-780	.508	2.-09 -4	-0.000	-0.021	5.-26 -1	1.-041	1.-166
41	6.978 -2	-0.154	.563	1.-62 -1	1.-061	.227	1.-88 -4	-0.000	-0.021	2.-32 -1	1.-215	.811
42	6.303 -2	-0.221	.497	5.-85 -2	1.-163	.125	1.-60 -4	-0.001	-0.021	1.-22 -1	1.-384	.643
43	5.-660 -2	-0.280	.437	7.-11 -2	1.-220	.068	1.-45 -4	-0.001	-0.021	7.-81 -2	1.-481	.546
44	5.105 -2	-0.334	.383	7.-63 -3	1.-213	.075	1.-41 -4	-0.001	-0.021	5.-88 -2	1.-548	.479
45	4.667 -2	-0.329	.348	4.-82 -3	1.-240	.049	2.-24 -4	-0.002	-0.020	3.-37 -2	1.-771	.257
46	4.1350 -2	-0.631	.046	6.-03 -3	1.-262	.026	6.-36 -4	-0.004	-0.018	1.-82 -2	1.-897	.130
47	3.666 -3	-0.678	.039	2.-26 -3	1.-280	.009	1.-15 -3	-0.008	-0.014	9.-48 -3	1.-945	.062
48	2.774 -3	-0.699	.004	6.-30 -4	1.-286	.003	1.-15 -3	-0.008	-0.014	4.-96 -3	1.-999	.029
49	5.-667 -4	-0.713	.001	5.-00 -5	1.-288	.000	2.-76 -4	-0.020	.001	9.-13 -4	2.-021	.006
50	7.119 -5	-0.717	.001	9.-14 -7	1.-288	.000	1.-19 -5	-0.022	.000	8.-40 -5	2.-027	.001

1	8-492 -7	-.000	1-120	2-28 -4	-300	-322	1-12 -0	.000
2	7-707 -7	-.717	1-03 0	2-39 -5	-300	-321	1-64 -1	.739
3	4-978 -2	-.634	3-87 -1	2-39 -5	-300	-321	2-15 -1	1-120
4	4-978 -2	-.563	1-45 -1	2-39 -5	-300	-321	1-16 -1	.799
5	4-103 -7	-.221	5-43 -2	2-39 -5	-300	-321	1-16 -1	.641
6	4-103 -7	-.280	4-41 -2	2-39 -5	-300	-321	1-16 -1	1-313
7	5-680 -2	-.334	1-032	2-39 -5	-300	-321	2-13 -2	.564
8	5-105 -7	-.334	3-83	2-39 -5	-300	-321	2-13 -2	1-313
9	2-867 -2	-.529	4-82 -3	2-39 -5	-300	-321	2-13 -2	.479
10	1-150 -2	-.631	4-03 -3	2-39 -5	-300	-321	3-37 -2	.257
11	4-184 -3	-.678	2-26 -4	2-39 -5	-300	-321	1-02 -2	1-120
12	2-779 -3	-.669	4-111 -4	2-39 -5	-300	-321	1-02 -2	.729
13	5-687 -4	-.713	6-30 -4	2-39 -5	-300	-321	9-48 -3	.062
14	7-119 -5	-.717	5-00 -5	2-76 -4	-300	-321	4-56 -3	.029
15	7-119 -5	-.001	9-16 -7	1-120	0-000	2-22	1-13 -4	1-853
16	8-492 -7	-.000	7-69 -1	2-76 -4	-300	-322	8-43 -5	.001
17	7-707 -7	-.081	3-06 -1	2-76 -4	-300	-322	8-54 -1	.639
18	4-978 -2	-.154	5-63 -1	2-76 -4	-300	-322	3-63 -1	1-056
19	4-978 -2	-.271	1-21 -1	2-76 -4	-300	-322	1-91 -1	.783
20	5-680 -2	-.280	4-83 -2	2-76 -4	-300	-322	1-91 -1	.637
21	5-105 -7	-.334	1-92 -2	2-76 -4	-300	-322	7-61 -2	.546
22	2-867 -2	-.529	5-63 -3	2-76 -4	-300	-322	5-88 -2	.479
23	1-150 -2	-.631	4-82 -3	2-76 -4	-300	-322	3-37 -2	.383
24	4-184 -3	-.666	6-03 -3	2-76 -4	-300	-322	1-82 -2	.130
25	2-779 -3	-.678	4-03 -3	2-76 -4	-300	-322	9-48 -3	.062
26	5-687 -4	-.699	6-30 -4	2-76 -4	-300	-322	4-56 -3	.029
27	7-119 -5	-.717	1-120	0-000	1-13 -5	2-22	8-40 -5	.001
28	6-492 -7	-.000	7-69 -1	2-76 -4	-300	-322	9-13 -4	.006
29	7-707 -7	-.081	3-06 -1	2-76 -4	-300	-322	8-40 -5	.006
30	4-978 -2	-.154	5-63 -1	2-76 -4	-300	-322	1-638	.001
31	4-978 -2	-.271	1-21 -1	2-76 -4	-300	-322	3-32 -1	.639
32	5-680 -2	-.280	4-83 -2	2-76 -4	-300	-322	1-76 -1	.732
33	5-105 -7	-.334	1-92 -2	2-76 -4	-300	-322	1-07 -1	.635
34	2-867 -2	-.529	5-63 -3	2-76 -4	-300	-322	7-53 -2	.545
35	1-150 -2	-.631	4-82 -3	2-76 -4	-300	-322	5-88 -2	.479
36	4-184 -3	-.666	6-03 -3	2-76 -4	-300	-322	3-37 -2	.257
37	2-779 -3	-.678	4-03 -3	2-76 -4	-300	-322	1-82 -2	.130
38	5-687 -4	-.699	6-30 -4	2-76 -4	-300	-322	9-48 -3	.029
39	7-119 -5	-.717	1-120	0-000	1-13 -5	2-22	8-40 -5	.001
40	6-492 -7	-.000	7-69 -1	2-76 -4	-300	-322	8-40 -5	.001
41	7-707 -7	-.081	3-06 -1	2-76 -4	-300	-322	1-638	.001
42	4-978 -2	-.154	5-63 -1	2-76 -4	-300	-322	3-32 -1	.639
43	4-978 -2	-.271	1-21 -1	2-76 -4	-300	-322	1-76 -1	.732
44	5-680 -2	-.280	4-83 -2	2-76 -4	-300	-322	1-07 -1	.635
45	5-105 -7	-.334	1-92 -2	2-76 -4	-300	-322	7-53 -2	.545
46	2-867 -2	-.529	5-63 -3	2-76 -4	-300	-322	5-88 -2	.479
47	1-150 -2	-.631	4-82 -3	2-76 -4	-300	-322	3-37 -2	.257
48	4-184 -3	-.666	6-03 -3	2-76 -4	-300	-322	1-82 -2	.130
49	2-779 -3	-.678	4-03 -3	2-76 -4	-300	-322	9-48 -3	.029
50	5-687 -4	-.699	6-30 -4	2-76 -4	-300	-322	4-56 -3	.029
51	7-119 -5	-.717	1-120	0-000	1-13 -5	2-22	8-40 -5	.001
52	6-492 -7	-.000	7-69 -1	2-76 -4	-300	-322	8-40 -5	.001
53	7-707 -7	-.081	3-06 -1	2-76 -4	-300	-322	1-638	.001
54	4-978 -2	-.154	5-63 -1	2-76 -4	-300	-322	3-32 -1	.639
55	4-978 -2	-.271	1-21 -1	2-76 -4	-300	-322	1-76 -1	.732
56	5-680 -2	-.280	4-83 -2	2-76 -4	-300	-322	1-07 -1	.635
57	5-105 -7	-.334	1-92 -2	2-76 -4	-300	-322	7-53 -2	.545
58	2-867 -2	-.529	5-63 -3	2-76 -4	-300	-322	5-88 -2	.479
59	1-150 -2	-.631	4-82 -3	2-76 -4	-300	-322	3-37 -2	.257
60	4-184 -3	-.666	6-03 -3	2-76 -4	-300	-322	1-82 -2	.130
61	2-779 -3	-.678	4-03 -3	2-76 -4	-300	-322	9-48 -3	.029
62	5-687 -4	-.699	6-30 -4	2-76 -4	-300	-322	4-56 -3	.029
63	7-119 -5	-.717	1-120	0-000	1-13 -5	2-22	8-40 -5	.001

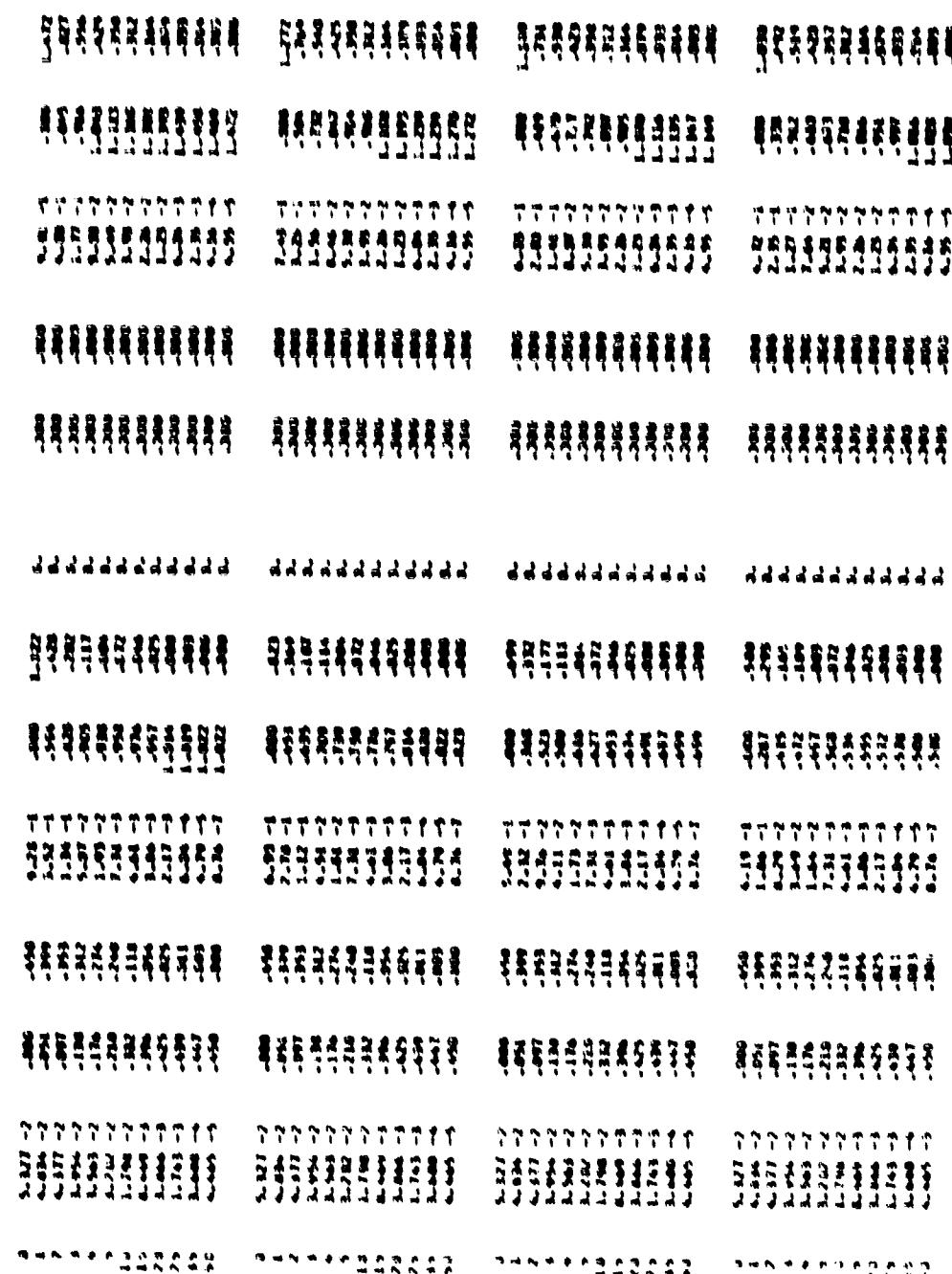
Table 3.6. Parameters at 0.36 Microns

Part.	Alt. km	Rayleigh		Rayleigh		Aerosol		Aerosol		Ozone	Ozone	Ozone	Ext.	Ext.	Ext.	
		atten. coeff. (km <sup>-1</sup> )	optical thick. (0-h)	atten. coeff. (km <sup>-1</sup> )	optical thick. (0-h)	optical thick. (h <sup>-1</sup> )	optical thick. (h <sup>-1</sup> )	absorp. coeff. (km <sup>-1</sup> )	optical thick. (0-h)	optical thick. (h <sup>-1</sup> )	optical thick. (h <sup>-1</sup> )	ext. (km <sup>-1</sup> )	optical thick. (0-h)	optical thick. (h <sup>-1</sup> )	ext. ext	
2	0	6.678	-2	-0.000	-564	2.92	0	-0.000	2.521	6.41	6	.001	2.98	C	.000	3.086
	1	6.660	-2	-0.004	-501	6.66	-1	1.706	-815	5.87	6	-0.001	9.44	-1	1.769	1.316
	2	6.647	-2	-0.121	-443	2.70	-1	2.225	-296	5.27	6	-0.001	3.25	-1	2.346	.739
	3	6.637	-2	-0.173	-391	8.23	-2	2.383	-138	4.50	6	-0.001	5.32	-1	2.556	.529
	4	6.627	-2	-0.220	-344	2.50	-2	2.431	-90	4.07	6	-0.001	6.97	2	2.652	.434
	5	6.615	-2	-0.263	-301	7.43	-3	2.446	-175	3.98	6	-0.001	4.78	-2	2.709	.377
	6	6.604	-2	-0.304	-248	4.82	-3	2.459	-112	3.30	6	-0.001	2.76	-2	2.889	.197
	7	6.594	-2	-0.342	-196	4.03	-3	2.495	-26	1.79	5	-0.001	1.67	-2	2.991	.096
	8	6.587	-2	-0.373	-153	2.26	-3	2.512	-69	2.95	5	-0.000	1.14	-3	3.046	.040
	9	6.580	-2	-0.414	-116	6.30	-4	2.518	-103	3.25	5	-0.000	2.85	-3	3.082	.003
	10	6.574	-2	-0.451	-764	5.00	-5	2.521	-100	7.76	6	-0.001	5.19	-4	3.085	.000
3	0	6.678	-2	-0.000	-564	1.94	0	-0.000	1.616	6.41	6	-0.001	2.00	0	-0.000	2.383
	1	6.660	-2	-0.004	-501	6.60	-1	1.112	-666	5.87	6	-0.001	7.01	-1	1.235	1.147
	2	6.647	-2	-0.121	-443	2.41	-1	1.559	-259	5.27	6	-0.001	2.66	-1	1.680	.703
	3	6.637	-2	-0.173	-391	6.99	-2	1.687	-131	4.50	6	-0.001	1.19	-1	1.860	.523
	4	6.627	-2	-0.220	-344	2.31	-2	1.729	-89	4.07	6	-0.001	6.78	-2	1.949	.423
	5	6.615	-2	-0.263	-301	7.43	-3	1.743	-175	3.98	6	-0.001	4.78	-2	2.006	.377
	6	6.604	-2	-0.304	-248	4.82	-3	1.769	-249	6.30	6	-0.001	2.76	-2	2.186	.197
	7	6.594	-2	-0.342	-196	4.03	-3	1.782	-62	1.79	5	-0.000	1.67	-2	2.288	.096
	8	6.587	-2	-0.373	-153	3.01	-3	1.809	-109	2.95	5	-0.000	7.14	-3	2.343	.040
	9	6.580	-2	-0.414	-116	2.26	-3	1.826	-103	3.24	5	-0.000	2.85	-3	2.385	.003
4	0	6.678	-2	-0.000	-564	1.94	0	-0.000	1.616	6.41	6	-0.001	2.00	0	-0.000	2.382
	1	6.660	-2	-0.004	-501	6.60	-1	1.112	-666	5.87	6	-0.001	7.01	-1	1.235	1.147
	2	6.647	-2	-0.121	-443	2.41	-1	1.559	-259	5.27	6	-0.001	2.66	-1	1.680	.703
	3	6.637	-2	-0.173	-391	6.99	-2	1.687	-131	4.50	6	-0.001	1.19	-1	1.860	.523
	4	6.627	-2	-0.220	-344	2.31	-2	1.729	-89	4.07	6	-0.001	6.78	-2	1.949	.423
	5	6.615	-2	-0.263	-301	7.43	-3	1.743	-175	3.98	6	-0.001	4.78	-2	2.006	.377
	6	6.604	-2	-0.304	-248	4.82	-3	1.769	-249	6.30	6	-0.001	2.76	-2	2.186	.197
	7	6.594	-2	-0.342	-196	4.03	-3	1.782	-62	1.79	5	-0.000	1.67	-2	2.288	.096
	8	6.587	-2	-0.373	-153	3.01	-3	1.809	-109	2.95	5	-0.000	7.14	-3	2.343	.040
	9	6.580	-2	-0.414	-116	2.26	-3	1.826	-103	3.24	5	-0.000	2.85	-3	2.385	.003
5	0	6.678	-2	-0.000	-564	1.94	0	-0.000	1.616	6.41	6	-0.001	2.00	0	-0.000	2.383
	1	6.660	-2	-0.004	-501	6.60	-1	1.112	-666	5.87	6	-0.001	7.01	-1	1.235	1.147
	2	6.647	-2	-0.121	-443	2.41	-1	1.559	-259	5.27	6	-0.001	2.66	-1	1.680	.703
	3	6.637	-2	-0.173	-391	6.99	-2	1.687	-131	4.50	6	-0.001	1.19	-1	1.860	.523
	4	6.627	-2	-0.220	-344	2.31	-2	1.729	-89	4.07	6	-0.001	6.78	-2	1.949	.423
	5	6.615	-2	-0.263	-301	7.43	-3	1.743	-175	3.98	6	-0.001	4.78	-2	2.006	.377
	6	6.604	-2	-0.304	-248	4.82	-3	1.769	-249	6.30	6	-0.001	2.76	-2	1.949	.423
	7	6.594	-2	-0.342	-196	4.03	-3	1.782	-62	1.79	5	-0.000	1.67	-2	2.288	.096
	8	6.587	-2	-0.373	-153	3.01	-3	1.809	-109	2.95	5	-0.000	7.14	-3	2.343	.040
	9	6.580	-2	-0.414	-116	2.26	-3	1.826	-103	3.24	5	-0.000	2.85	-3	2.385	.003
6	0	6.678	-2	-0.000	-564	1.94	0	-0.000	1.616	6.41	6	-0.001	2.00	0	-0.000	2.383
	1	6.660	-2	-0.004	-501	6.60	-1	1.112	-666	5.87	6	-0.001	7.01	-1	1.235	1.147
	2	6.647	-2	-0.121	-443	2.41	-1	1.559	-259	5.27	6	-0.001	2.66	-1	1.680	.703
	3	6.637	-2	-0.173	-391	6.99	-2	1.687	-131	4.50	6	-0.001	1.19	-1	1.860	.523
	4	6.627	-2	-0.220	-344	2.31	-2	1.729	-89	4.07	6	-0.001	6.78	-2	1.949	.423
	5	6.615	-2	-0.263	-301	7.43	-3	1.743	-175	3.98	6	-0.001	4.78	-2	2.006	.377
	6	6.604	-2	-0.304	-248	4.82	-3	1.769	-249	6.30	6	-0.001	2.76	-2	1.949	.423
	7	6.594	-2	-0.342	-196	4.03	-3	1.782	-62	1.79	5	-0.000	1.67	-2	2.288	.096
	8	6.587	-2	-0.373	-153	3.01	-3	1.809	-109	2.95	5	-0.000	7.14	-3	2.343	.040
	9	6.580	-2	-0.414	-116	2.26	-3	1.826	-103	3.24	5	-0.000	2.85	-3	2.385	.003
7	0	6.678	-2	-0.000	-564	1.94	0	-0.000	1.616	6.41	6	-0.001	2.00	0	-0.000	2.383
	1	6.660	-2	-0.004	-501	6.60	-1	1.112	-666	5.87	6	-0.001	7.01	-1	1.235	1.147
	2	6.647	-2	-0.121	-443	2.41	-1	1.559	-259	5.27	6	-0.001	2.66	-1	1.680	.703
	3	6.637	-2	-0.173	-391	6.99	-2	1.687	-131	4.50	6	-0.001	1.19	-1	1.860	.523
	4	6.627	-2	-0.220	-344	2.31	-2	1.729	-89	4.07	6	-0.001	6.78	-2	1.949	.423
	5	6.615	-2	-0.263	-301	7.43	-3	1.743	-175	3.98	6	-0.001	4.78	-2	2.006	.377
	6	6.604	-2	-0.304	-248	4.82	-3	1.769	-249	6.30	6	-0.001	2.76	-2	1.949	.423
	7	6.594	-2	-0.342	-196	4.03	-3	1.782	-62	1.79	5	-0.000	1.67	-2	2.288	.096
	8	6.587	-2	-0.373	-153	3.01	-3	1.809	-109	2.95	5	-0.000	7.14	-3	2.343	.040
	9	6.580	-2	-0.414	-116	2.26	-3	1.826	-103	3.24	5	-0.000	2.85	-3	2.385	.003
8	0	6.678	-2	-0.000	-564	1.94	0	-0.000	1.616	6.41	6	-0.001	2.00	0	-0.000	2.383
	1	6.660	-2	-0.004	-501	6.60	-1	1.112	-666	5.87	6	-0.001	7.01	-1	1.235	1.147
	2	6.647	-2	-0.121	-443	2.41	-1	1.559	-259	5.27	6	-0.001	2.66	-1	1.680	.703
	3	6.637	-2</													

3	6.678 -2	.566	9.61 -1	-.660	6.41 -6	.300	.001	1.03 0	.000	1.625
4	6.460 -2	.066	5.621	-.561	6.16	-.445	5.87 -6	-.300	.679	-.96
5	6.467 -2	.121	6.443	1.39	1.39	-.211	5.27 -6	-.200	.001	1.94 -1
6	6.467 -2	.173	3.391	5.28	2	-.939	1.22	4.50 -5	-.001	1.02 -1
7	6.467 -2	.220	3.364	2	2.01	-.972	-.089	5.07 -6	-.001	1.112
8	6.467 -2	.263	3.301	7.63	3	-.985	-.075	3.98 -6	-.001	1.193
9	6.467 -2	.316	1.149	4.82	3	1.012	-.069	6.30 -6	-.001	6.47 -2
10	6.467 -2	.369	1.034	6.03	3	1.034	-.026	1.79 -5	-.001	4.78 -2
11	6.467 -2	.422	1.031	2.26	3	1.052	-.009	2.95 -5	-.001	2.74 -2
12	6.467 -2	.475	2.185	1.56	4	1.058	-.003	3.24 -5	-.001	1.47 -2
13	6.467 -2	.528	4.614	5.00	5	1.060	-.000	7.76 -6	-.001	1.531
14	6.467 -2	.581	5.598	5.00	5	1.061	-.000	3.35 -7	-.001	1.585
15	6.467 -2	.634	5.598	5.14	5	1.061	-.000	5.19 -4	-.001	1.608
16	6.467 -2	.687	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
17	6.467 -2	.740	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
18	6.467 -2	.793	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
19	6.467 -2	.846	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
20	6.467 -2	.899	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
21	6.467 -2	.952	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
22	6.467 -2	1.005	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
23	6.467 -2	1.058	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
24	6.467 -2	1.111	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
25	6.467 -2	1.164	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
26	6.467 -2	1.217	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
27	6.467 -2	1.270	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
28	6.467 -2	1.323	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
29	6.467 -2	1.376	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
30	6.467 -2	1.429	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
31	6.467 -2	1.482	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
32	6.467 -2	1.535	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
33	6.467 -2	1.588	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
34	6.467 -2	1.641	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
35	6.467 -2	1.694	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
36	6.467 -2	1.747	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
37	6.467 -2	1.799	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
38	6.467 -2	1.852	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
39	6.467 -2	1.905	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
40	6.467 -2	1.958	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
41	6.467 -2	2.011	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
42	6.467 -2	2.064	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
43	6.467 -2	2.117	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
44	6.467 -2	2.170	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
45	6.467 -2	2.223	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
46	6.467 -2	2.276	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
47	6.467 -2	2.329	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
48	6.467 -2	2.382	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
49	6.467 -2	2.435	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
50	6.467 -2	2.488	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
51	6.467 -2	2.541	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
52	6.467 -2	2.594	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
53	6.467 -2	2.647	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
54	6.467 -2	2.699	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
55	6.467 -2	2.752	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
56	6.467 -2	2.805	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
57	6.467 -2	2.858	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
58	6.467 -2	2.911	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
59	6.467 -2	2.964	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
60	6.467 -2	3.017	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
61	6.467 -2	3.070	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
62	6.467 -2	3.123	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
63	6.467 -2	3.176	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
64	6.467 -2	3.229	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
65	6.467 -2	3.282	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
66	6.467 -2	3.335	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
67	6.467 -2	3.388	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
68	6.467 -2	3.441	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
69	6.467 -2	3.494	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
70	6.467 -2	3.547	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
71	6.467 -2	3.599	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
72	6.467 -2	3.652	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
73	6.467 -2	3.705	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
74	6.467 -2	3.758	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
75	6.467 -2	3.811	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
76	6.467 -2	3.864	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
77	6.467 -2	3.917	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
78	6.467 -2	3.970	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
79	6.467 -2	4.023	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
80	6.467 -2	4.076	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
81	6.467 -2	4.129	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
82	6.467 -2	4.182	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
83	6.467 -2	4.235	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
84	6.467 -2	4.288	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
85	6.467 -2	4.341	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
86	6.467 -2	4.394	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
87	6.467 -2	4.447	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
88	6.467 -2	4.499	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
89	6.467 -2	4.552	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
90	6.467 -2	4.605	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
91	6.467 -2	4.658	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
92	6.467 -2	4.711	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
93	6.467 -2	4.764	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
94	6.467 -2	4.817	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
95	6.467 -2	4.870	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
96	6.467 -2	4.923	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
97	6.467 -2	4.976	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
98	6.467 -2	5.029	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
99	6.467 -2	5.082	6.467	5.00	5	1.061	-.000	5.72 -5	-.001	1.625
100	6.467 -2	5.135	6.467							

Table 3.7. Parameters at 0.38 Microns

Mer.	Alt. Age (km)	Rayleigh atm. coeff. (km <sup>-1</sup> )	Rayleigh optical thick. (0-h)	Rayleigh optical thick. (0-e)	Aerosol				Ozone absorpt. coeff. (km <sup>-1</sup> )	Ozone optical thick. (km <sup>-1</sup> )	Ext. coeff. (km <sup>-1</sup> )	Ext. coeff. (km <sup>-1</sup> )	Ext. coeff. (km <sup>-1</sup> )	
					$\epsilon_1$	$\epsilon_2$	$\epsilon_3$	$\epsilon_p$						
3	5.327	-2	-0.00	-0.50	-2.42	-2	-0.60	-2.63	-2	-2.20	-0.00	-2.57	-2	-2.81
4	6.624	-2	-0.051	-0.39	-3.46	-1	-1.46	-2.75	-2	-2.02	-0.00	-3.46	-1	-3.18
5	6.317	-2	-0.067	-0.353	-2.50	-1	-2.16	-2.25	-2	-2.02	-0.00	-2.17	-1	-2.20
6	3.956	-2	-1.16	-3.12	-5.91	-2	-2.94	-1.92	-2	-2.00	-0.00	-5.97	-2	-4.64
7	3.563	-2	-1.16	-2.76	-2.46	-2	-3.65	-0.86	-2	-2.00	-0.00	-5.97	-2	-3.25
2	3.202	-2	-2.10	-2.62	-7.21	-2	-3.59	-0.72	-2	-2.00	-0.00	-5.97	-2	-3.12
10	1.708	-2	-0.52	-1.18	-4.61	-3	-2.86	-0.66	-2	-2.00	-0.00	-2.26	-2	-1.64
11	8.464	-3	-0.96	-0.54	-0.54	-3	-0.66	-0.54	-2	-0.25	-0.00	-1.23	-2	-0.79
12	3.606	-3	-0.25	-0.25	-2.17	-3	-2.42	-0.06	-2	-2.00	-0.00	-6.29	-3	-2.33
13	1.763	-3	-0.39	-0.11	-0.06	-3	-2.78	-0.63	-2	-2.00	-0.00	-2.35	-3	-2.16
14	3.460	-4	-0.47	-0.33	-0.79	-3	-4.50	-0.60	-2	-2.00	-0.00	-2.35	-3	-2.33
15	6.465	-5	-0.50	-0.20	-0.76	-3	-2.91	-0.20	-2	-2.00	-0.00	-6.35	-5	-0.00
16	3.427	-2	-0.00	-0.10	-1.47	0	-0.60	-1.75	0	-2.00	-0.00	-1.92	0	-2.32
17	6.834	-2	-0.1	-0.59	-6.17	-1	-1.31	-4.22	-2	-2.00	-0.00	-6.17	-1	-1.31
18	6.377	-2	-0.07	-0.53	-7.65	-1	-1.56	-2.49	-2	-2.00	-0.00	-2.43	-1	-0.00
19	3.496	-2	-1.16	-3.12	-6.22	-2	-4.65	-1.26	-2	-2.00	-0.00	-1.32	-1	-4.36
20	3.563	-2	-1.16	-2.76	-7.74	-2	-5.67	-0.75	-2	-2.00	-0.00	-5.75	-2	-3.03
21	3.202	-2	-2.10	-2.62	-7.03	-2	-4.60	-0.72	-2	-2.00	-0.00	-3.89	-2	-3.12
22	1.708	-2	-0.52	-1.18	-4.61	-3	-2.72	-0.66	-2	-2.00	-0.00	-2.26	-2	-1.64
23	8.464	-3	-0.96	-0.54	-3.32	-3	-1.16	-1.76	-2	-2.00	-0.00	-6.29	-3	-2.33
24	3.606	-3	-0.25	-0.25	-3.06	-3	-1.77	-2.27	-2	-2.00	-0.00	-2.35	-2	-2.23
25	1.763	-3	-0.39	-0.11	-0.25	-3	-3.46	-0.66	-2	-2.00	-0.00	-2.35	-3	-2.16
26	3.460	-4	-0.47	-0.33	-0.79	-3	-4.50	-0.63	-2	-2.00	-0.00	-2.35	-3	-2.33
27	6.465	-5	-0.50	-0.20	-0.76	-3	-2.91	-0.20	-2	-2.00	-0.00	-6.35	-5	-0.00
28	3.427	-2	-0.00	-0.10	-1.47	0	-0.60	-1.75	0	-2.00	-0.00	-1.92	0	-2.32
29	6.834	-2	-0.1	-0.59	-6.17	-1	-1.31	-4.22	-2	-2.00	-0.00	-6.17	-1	-1.31
30	6.377	-2	-0.07	-0.53	-7.65	-1	-1.56	-2.49	-2	-2.00	-0.00	-2.43	-1	-0.00
31	3.496	-2	-1.16	-3.12	-6.22	-2	-4.65	-1.26	-2	-2.00	-0.00	-1.32	-1	-4.36
32	3.563	-2	-1.16	-2.76	-7.74	-2	-5.67	-0.75	-2	-2.00	-0.00	-5.75	-2	-3.03
33	3.202	-2	-2.10	-2.62	-7.03	-2	-4.60	-0.72	-2	-2.00	-0.00	-3.89	-2	-3.12
34	1.708	-2	-0.52	-1.18	-4.61	-3	-2.72	-0.66	-2	-2.00	-0.00	-2.26	-2	-1.64
35	8.464	-3	-0.96	-0.54	-3.32	-3	-1.16	-1.76	-2	-2.00	-0.00	-6.29	-3	-2.33
36	3.606	-3	-0.25	-0.25	-3.06	-3	-1.77	-2.27	-2	-2.00	-0.00	-2.35	-2	-2.23
37	1.763	-3	-0.39	-0.11	-0.25	-3	-3.46	-0.66	-2	-2.00	-0.00	-2.35	-3	-2.16
38	3.460	-4	-0.47	-0.33	-0.79	-3	-4.50	-0.63	-2	-2.00	-0.00	-2.35	-3	-2.33
39	6.465	-5	-0.50	-0.20	-0.76	-3	-2.91	-0.20	-2	-2.00	-0.00	-6.35	-5	-0.00
40	3.427	-2	-0.00	-0.10	-1.47	0	-0.60	-1.75	0	-2.00	-0.00	-1.92	0	-2.32
41	6.834	-2	-0.1	-0.59	-6.17	-1	-1.31	-4.22	-2	-2.00	-0.00	-6.17	-1	-1.31
42	6.377	-2	-0.07	-0.53	-7.65	-1	-1.56	-2.49	-2	-2.00	-0.00	-2.43	-1	-0.00
43	3.496	-2	-1.16	-3.12	-6.22	-2	-4.65	-1.26	-2	-2.00	-0.00	-1.32	-1	-4.36
44	3.563	-2	-1.16	-2.76	-7.74	-2	-5.67	-0.75	-2	-2.00	-0.00	-5.75	-2	-3.03
45	3.202	-2	-2.10	-2.62	-7.03	-2	-4.60	-0.72	-2	-2.00	-0.00	-3.89	-2	-3.12
46	1.708	-2	-0.52	-1.18	-4.61	-3	-2.72	-0.66	-2	-2.00	-0.00	-2.26	-2	-1.64
47	8.464	-3	-0.96	-0.54	-3.32	-3	-1.16	-1.76	-2	-2.00	-0.00	-6.29	-3	-2.33
48	3.606	-3	-0.25	-0.25	-3.06	-3	-1.77	-2.27	-2	-2.00	-0.00	-2.35	-2	-2.23
49	1.763	-3	-0.39	-0.11	-0.25	-3	-3.46	-0.66	-2	-2.00	-0.00	-2.35	-3	-2.16
50	3.460	-4	-0.47	-0.33	-0.79	-3	-4.50	-0.63	-2	-2.00	-0.00	-2.35	-3	-2.33
51	6.465	-5	-0.50	-0.20	-0.76	-3	-2.91	-0.20	-2	-2.00	-0.00	-6.35	-5	-0.00
52	3.427	-2	-0.00	-0.10	-1.47	0	-0.60	-1.75	0	-2.00	-0.00	-1.92	0	-2.32
53	6.834	-2	-0.1	-0.59	-6.17	-1	-1.31	-4.22	-2	-2.00	-0.00	-6.17	-1	-1.31
54	6.377	-2	-0.07	-0.53	-7.65	-1	-1.56	-2.49	-2	-2.00	-0.00	-2.43	-1	-0.00
55	3.496	-2	-1.16	-3.12	-6.22	-2	-4.65	-1.26	-2	-2.00	-0.00	-1.32	-1	-4.36
56	3.563	-2	-1.16	-2.76	-7.74	-2	-5.67	-0.75	-2	-2.00	-0.00	-5.75	-2	-3.03
57	3.202	-2	-2.10	-2.62	-7.03	-2	-4.60	-0.72	-2	-2.00	-0.00	-3.89	-2	-3.12
58	1.708	-2	-0.52	-1.18	-4.61	-3	-2.72	-0.66	-2	-2.00	-0.00	-2.26	-2	-1.64
59	8.464	-3	-0.96	-0.54	-3.32	-3	-1.16	-1.76	-2	-2.00	-0.00	-6.29	-3	-2.33
60	3.606	-3	-0.25	-0.25	-3.06	-3	-1.77	-2.27	-2	-2.00	-0.00	-2.35	-2	-2.23
61	1.763	-3	-0.39	-0.11	-0.25	-3	-3.46	-0.66	-2	-2.00	-0.00	-2.35	-3	-2.16
62	3.460	-4	-0.47	-0.33	-0.79	-3	-4.50	-0.63	-2	-2.00	-0.00	-2.35	-3	-2.33
63	6.465	-5	-0.50	-0.20	-0.76	-3	-2.91	-0.20	-2	-2.00	-0.00	-6.35	-5	-0.00
64	3.427	-2	-0.00	-0.10	-1.47	0	-0.60	-1.75	0	-2.00	-0.00	-1.92	0	-2.32
65	6.834	-2	-0.1	-0.59	-6.17	-1	-1.31	-4.22	-2	-2.00	-0.00	-6.17	-1	-1.31
66	6.377	-2	-0.07	-0.53	-7.65	-1	-1.56	-2.49	-2	-2.00	-0.00	-2.43	-1	-0.00
67	3.496	-2	-1.16	-3.12	-6.22	-2	-4.65	-1.26	-2	-2.00	-0.00	-1.32	-1	-4.36
68	3.563	-2	-1.16	-2.76	-7.74	-2	-5.67	-0.75	-2	-2.00	-0.00	-5.75	-2	-3.03
69	3.202	-2	-2.10	-2.62	-7.03	-2	-4.60	-0.72	-2	-2.00	-0.00	-3.89	-2	-3.12
70	1.708	-2	-0.52	-1.18	-4.61	-3	-2.72	-0.66	-2	-2.00	-0.00	-2.26	-2	-1.64
71	8.464	-3	-0.96	-0.54	-3.32	-3	-1.16	-1.76	-2	-2.00	-0.00	-6.29	-3	-2.33
72	3.606	-3	-0.25	-0.25	-3.06	-3	-1.77	-2.27	-2	-2.00	-0.00	-2.35	-2	-2.23
73	1.763	-3	-0.39	-0.11	-0.25	-3	-3.46	-0.66	-2	-2.00	-0.00	-2.35	-3	-2.16
74	3.460	-4	-0.47	-0.33	-0.79	-3	-4.50	-0.63	-2	-2.00	-0.00	-2.35	-3	-2.33
75	6.465	-5	-0.50	-0.20	-0.76	-3	-2.91	-0.20	-2	-2.00	-0.00	-6.35	-5	-0.00
76	3.427	-2	-0.00	-0.10	-1.47	0	-0.60	-1.75	0	-2.00	-0.00	-1.92	0	-2.32
77	6.834	-												



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Table 3.8. Parameters at 0.40 Microns



Table 3.9. Parameters at 0.45 Microns

Met.	Alt.	Rayleigh attenu. coeff. (km <sup>-1</sup> )	Rayleigh optical thick. (0-h)	Rayleigh optical thick. (h-a)	Aerosol attenu. coeff. (km <sup>-1</sup> )	Aerosol optical thick. (0-h)	Ozone absorp. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)	Ozone optical thick. (h-a)	Ext. coeff. (km <sup>-1</sup> )	Ext. optical thick. (0-h)	Ext. optical thick. (h-a)
1	2.644 -2	.000	.223	2.31 -0	.000	1.918	1.25 -5	.200	.001	2.34 -0	.000	2.203
1	2.600 -2	.025	.198	6.96 -1	1.347	.632	1.14 -5	.200	.001	7.20 -1	1.312	.631
2	2.173 -2	.048	.175	2.10 -1	1.752	.226	1.03 -5	.200	.001	2.31 -1	1.800	.403
1	1.963 -2	.069	.155	6.31 -2	1.874	.104	8.75 -6	.200	.001	8.27 -2	1.963	.260
2	1.769 -2	.087	.136	1.90 -2	1.911	.067	7.91 -6	.200	.001	3.67 -2	1.996	.205
1	1.590 -2	.104	.119	5.72 -3	1.922	.056	7.73 -6	.200	.001	2.16 -2	2.023	.177
10	8.926 -3	.165	.359	3.61 -3	1.942	.036	1.22 -5	.200	.001	1.25 -2	2.107	.096
13	4.704 -3	.197	.627	3.02 -3	1.959	.020	3.48 -5	.200	.001	7.76 -3	2.156	.047
23	8.919 -3	.211	.012	1.70 -3	1.972	.007	5.74 -5	.200	.001	3.67 -3	2.183	.020
22	8.652 -4	.218	.006	6.73 -4	1.976	.002	5.30 -5	.200	.001	1.60 -3	2.195	.008
12	1.827 -4	.222	.001	3.75 -5	1.978	.000	1.51 -5	.201	.000	2.35 -6	2.201	.001
13	2.217 -5	.000	.223	6.86 -7	1.978	.000	6.51 -7	.201	.000	2.35 -5	.201	.000
0	2.644 -2	.000	.223	1.54 -0	.000	1.425	1.25 -5	.200	.001	1.56 -0	.000	1.650
1	2.400 -2	.025	.198	5.02 -1	.925	.500	1.14 -5	.200	.001	5.26 -1	.950	.699
2	2.173 -2	.048	.175	1.64 -1	1.227	.198	1.03 -5	.200	.001	1.86 -1	1.275	.374
4	1.963 -2	.069	.155	5.36 -2	1.326	.099	8.75 -6	.200	.001	7.32 -2	1.395	.255
4	1.769 -2	.087	.136	1.75 -2	1.358	.067	7.91 -6	.200	.001	3.52 -2	1.445	.204
5	1.590 -2	.104	.119	5.72 -3	1.369	.056	7.73 -6	.200	.001	2.16 -2	1.473	.177
12	8.926 -3	.165	.069	3.61 -3	1.389	.036	1.22 -5	.200	.001	1.25 -2	1.554	.096
13	4.704 -3	.197	.027	3.02 -3	1.405	.020	3.48 -5	.200	.001	7.76 -3	1.602	.047
23	8.919 -3	.211	.012	1.70 -3	1.419	.007	5.74 -5	.200	.001	3.67 -3	1.630	.020
22	8.652 -4	.218	.006	6.73 -4	1.423	.002	6.30 -5	.201	.000	1.60 -3	1.642	.008
12	1.827 -4	.222	.001	3.75 -5	1.425	.000	1.51 -5	.201	.000	2.35 -6	1.648	.001
13	2.217 -5	.000	.223	6.86 -7	1.425	.000	6.51 -7	.201	.000	2.35 -5	1.649	.000
0	2.644 -2	.000	.223	1.15 -0	.000	1.135	1.25 -5	.200	.001	1.18 -0	.000	1.360
1	2.400 -2	.025	.198	3.98 -1	.769	.426	1.14 -5	.200	.001	4.22 -1	.734	.426
2	2.173 -2	.048	.175	1.38 -1	.954	.181	1.03 -5	.200	.001	1.60 -1	1.002	.357
4	1.963 -2	.069	.155	4.77 -2	1.039	.096	8.75 -6	.200	.001	6.76 -2	1.108	.252
4	1.769 -2	.087	.136	1.65 -2	1.049	.067	7.91 -6	.200	.001	3.42 -2	1.156	.204
5	1.590 -2	.104	.119	5.72 -3	1.059	.056	7.73 -6	.200	.001	2.16 -2	1.183	.177
12	8.926 -3	.165	.069	3.61 -3	1.069	.036	1.22 -5	.200	.001	1.25 -2	1.264	.096
13	4.704 -3	.197	.027	3.02 -3	1.116	.020	3.48 -5	.200	.001	7.76 -3	1.312	.047
23	8.919 -3	.211	.012	1.70 -3	1.129	.007	5.74 -5	.200	.001	3.67 -3	1.349	.020
22	8.652 -4	.218	.006	6.73 -4	1.129	.002	6.30 -5	.201	.000	1.60 -3	1.352	.008
12	1.827 -4	.222	.001	3.75 -5	1.135	.000	1.51 -5	.201	.000	2.35 -6	1.358	.001
13	2.217 -5	.000	.223	6.86 -7	1.135	.000	6.51 -7	.201	.000	2.35 -5	1.360	.000
0	2.644 -2	.000	.223	9.17 -1	.000	.954	1.25 -5	.200	.001	9.63 -1	.000	1.178
1	2.400 -2	.025	.198	3.32 -1	.576	.378	1.14 -5	.200	.001	3.56 -1	.461	.377
2	2.173 -2	.048	.175	1.20 -1	.786	.169	1.03 -5	.200	.001	1.62 -1	.832	.346
4	1.963 -2	.069	.155	4.36 -2	.860	.094	8.75 -6	.200	.001	6.32 -2	.929	.250
4	1.769 -2	.087	.136	1.58 -2	.687	.066	7.91 -6	.200	.001	3.35 -2	.975	.204
5	1.590 -2	.104	.119	5.72 -3	.857	.056	7.73 -6	.200	.001	2.16 -2	1.001	.177
12	8.926 -3	.165	.069	3.61 -3	.917	.036	1.22 -5	.200	.001	1.25 -2	1.042	.096
13	4.704 -3	.197	.027	3.02 -3	.934	.020	3.48 -5	.200	.001	7.76 -3	1.131	.047
23	8.919 -3	.211	.012	1.70 -3	.947	.007	5.74 -5	.200	.001	3.67 -3	1.159	.020
22	8.652 -4	.218	.006	6.73 -4	.952	.002	6.30 -5	.201	.000	1.60 -3	1.170	.008
12	1.827 -4	.222	.001	3.75 -5	.953	.000	1.51 -5	.201	.000	2.35 -6	1.177	.001
13	2.217 -5	.000	.223	6.86 -7	.954	.000	6.51 -7	.201	.000	2.35 -5	1.178	.000



Table 3.10. Parameters at 0.50 Microns

Met. Re-	Alt. (km)	Rayleigh atten. coeff. (km <sup>-1</sup> )		Rayleigh optical thick. (0-h)		Aerosol atten. coeff. (km <sup>-1</sup> )		Aerosol optical thick. (0-h)		Ozone absorp. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)	Ozone ext. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)	Ozone ext. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)	Ozone ext. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)
		V <sub>n</sub>	b	e <sub>r</sub>	r <sub>r</sub>	e <sub>p</sub>	r <sub>p</sub>	e <sub>s</sub>	r <sub>s</sub>	e <sub>t</sub>	r <sub>t</sub>	e <sub>ext</sub>	r <sub>ext</sub>	e <sub>ext</sub>	r <sub>ext</sub>	e <sub>ext</sub>	r <sub>ext</sub>
2	0	1.716	-7	.000	-165	2.11	0	.000	1.812	1.23	-7	.160	.012	2.13	0	.000	1.96
	1	1.557	-2	.016	-129	6.38	-1	1.231	.581	1.12	-6	.300	.012	6.54	-1	1.24	.721
	2	1.610	-2	.031	-114	1.93	-1	1.03	.209	1.01	-6	.300	.011	2.07	-1	.334	.634
	3	1.773	-2	.045	-100	5.82	-2	1.15	.096	6.63	-5	.300	.011	7.13	-2	1.76	.208
	4	1.148	-2	.057	-98	1.76	-2	1.749	.063	7.40	-5	.300	.011	2.91	-2	1.80	.162
	5	1.031	-2	.068	-97	5.31	-3	.759	.052	7.62	-5	.300	.011	1.57	-2	1.82	.027
	6	1.794	-3	.107	-93	1.07	-3	.778	.034	1.21	-5	.300	.011	1.57	-2	1.82	.027
	7	2.726	-3	.128	-91	2.80	-3	.754	.018	3.43	-4	.300	.011	9.26	-3	1.88	.033
	8	1.745	-3	.137	-90	1.57	-3	.466	.006	5.66	-4	.300	.010	5.87	-3	1.92	.045
	9	5.616	-4	.141	-89	4.39	-4	.110	.002	6.21	-4	.307	.007	3.39	-3	1.94	.021
3	10	1.185	-4	.144	-89	3.48	-5	.812	.000	1.49	-4	.306	.004	1.42	-3	1.99	.010
	11	1.438	-5	.145	-89	6.36	-7	.4612	.000	6.42	-6	.312	.000	2.16	-4	1.96	.002
	12	1.716	-7	.000	-145	1.40	0	-6.00	1.305	1.23	-6	.300	.012	1.42	0	.000	1.46
	13	1.557	-2	.016	-129	6.60	-1	.846	.160	1.12	-6	.300	.012	6.62	-1	.600	.600
	14	1.610	-2	.031	-114	2.51	-1	1.123	.183	1.01	-6	.300	.011	1.65	-1	1.54	.308
	15	1.773	-2	.045	-100	4.94	-2	1.214	.092	6.63	-5	.300	.011	6.22	-2	1.259	.204
	16	1.148	-2	.057	-98	4.62	-2	1.243	.062	7.50	-5	.300	.011	7.77	-2	1.300	.162
	17	1.031	-2	.068	-97	5.31	-3	1.253	.052	7.62	-5	.300	.011	1.57	-2	1.321	.141
	18	0.791	-3	.107	-93	3.35	-3	.272	.036	1.21	-6	.301	.011	5.26	-3	1.360	.083
	19	1.726	-3	.128	-91	2.80	-3	.287	.016	3.43	-4	.302	.010	5.87	-3	1.417	.045
4	20	1.745	-3	.137	-90	1.57	-3	.299	.006	5.46	-4	.304	.007	3.39	-3	1.44	.021
	21	5.616	-4	.141	-89	4.39	-4	.306	.002	6.21	-4	.307	.004	1.62	-3	1.452	.010
	22	1.185	-4	.144	-89	3.48	-5	.805	.000	1.49	-4	.311	.001	3.02	-4	1.460	.002
	23	1.438	-5	.145	-89	6.36	-7	1.305	.000	6.62	-6	.312	.000	2.16	-5	1.462	.000
	24	1.716	-7	.000	-145	1.40	0	-6.00	1.305	1.23	-6	.300	.012	1.42	0	.000	1.47
	25	1.557	-2	.016	-129	6.60	-1	.846	.160	1.12	-6	.300	.012	3.80	-1	.600	.532
	26	1.610	-2	.031	-114	2.51	-1	1.123	.183	1.01	-6	.300	.011	1.64	-1	.500	.292
	27	1.773	-2	.045	-100	4.94	-2	1.214	.092	6.63	-5	.300	.011	6.43	-2	.994	.201
	28	1.148	-2	.057	-98	4.62	-2	1.243	.062	7.50	-5	.300	.011	7.44	-2	1.035	.161
	29	1.031	-2	.068	-97	5.31	-3	1.253	.052	7.62	-5	.300	.011	1.57	-2	1.056	.161
5	30	0.791	-3	.107	-93	3.35	-3	.066	.034	1.21	-6	.301	.011	9.26	-3	1.114	.083
	31	2.726	-3	.128	-91	2.80	-3	.022	.016	3.43	-4	.302	.010	5.87	-3	1.152	.045
	32	1.245	-4	.137	-90	1.57	-3	.036	.006	5.66	-4	.304	.007	3.39	-3	1.175	.021
	33	2.614	-4	.141	-89	4.39	-4	.004	.002	6.21	-4	.307	.004	1.62	-3	1.187	.013
	34	1.185	-4	.144	-89	3.48	-5	.001	.002	1.49	-4	.311	.001	3.02	-4	1.197	.002
	35	1.438	-5	.145	-89	6.36	-7	1.305	.000	6.62	-6	.312	.000	2.16	-5	1.197	.000
	36	1.716	-7	.000	-145	1.40	0	-6.00	1.305	1.23	-6	.300	.012	1.42	0	.000	1.197
	37	1.557	-2	.016	-129	6.60	-1	.846	.160	1.12	-6	.300	.012	3.80	-1	.600	.532
	38	1.610	-2	.031	-114	2.51	-1	1.123	.183	1.01	-6	.300	.011	1.64	-1	.500	.292
	39	1.773	-2	.045	-100	4.94	-2	1.214	.092	6.63	-5	.300	.011	6.43	-2	.994	.201
6	40	1.148	-2	.057	-98	4.62	-2	1.243	.062	7.50	-5	.300	.011	7.44	-2	1.035	.161
	41	1.031	-2	.068	-97	5.31	-3	.986	.052	1.80	-5	.303	.011	2.44	-2	1.056	.161
	42	1.726	-3	.107	-93	3.35	-3	.066	.034	1.21	-6	.300	.011	1.57	-2	1.056	.161
	43	1.745	-3	.128	-91	2.80	-3	.022	.016	3.43	-4	.302	.010	9.26	-3	1.114	.083
	44	5.616	-4	.137	-90	1.57	-3	.036	.006	5.66	-4	.304	.007	3.39	-3	1.152	.021
	45	1.185	-4	.141	-89	4.39	-4	.004	.002	6.21	-4	.307	.004	1.62	-3	1.187	.013
	46	1.438	-5	.145	-89	6.36	-7	1.305	.000	6.62	-6	.311	.001	3.02	-4	1.197	.002
	47	1.716	-7	.000	-145	1.40	0	-6.00	1.305	1.23	-6	.300	.012	1.42	0	.000	1.197
	48	1.557	-2	.016	-129	6.60	-1	.846	.160	1.12	-6	.300	.012	3.80	-1	.600	.532
	49	1.610	-2	.031	-114	2.51	-1	1.123	.183	1.01	-6	.300	.011	1.64	-1	.500	.292
50	50	1.773	-2	.045	-100	4.94	-2	1.214	.092	6.63	-5	.300	.011	6.43	-2	.994	.201
	51	5.616	-3	.107	-93	3.35	-3	.066	.034	1.21	-6	.302	.010	2.44	-2	1.056	.161
	52	1.185	-4	.141	-89	4.39	-4	.004	.002	6.21	-4	.307	.004	1.62	-3	1.187	.013
	53	1.438	-5	.145	-89	6.36	-7	1.305	.000	6.62	-6	.311	.001	3.02	-4	1.197	.002
	54	1.716	-7	.000	-145	1.40	0	-6.00	1.305	1.23	-6	.300	.012	1.42	0	.000	1.197
	55	1.557	-2	.016	-129	6.60	-1	.846	.160	1.12	-6	.300	.012	3.80	-1	.600	.532
	56	1.610	-2	.031	-114	2.51	-1	1.123	.183	1.01	-6	.300	.011	1.64	-1	.500	.292
	57	1.773	-2	.045	-100	4.94	-2	1.214	.092	6.63	-5	.300	.011	6.43	-2	.994	.201
	58	5.616	-3	.107	-93	3.35	-3	.066	.034	1.21	-6	.302	.010	2.44	-2	1.056	.161
	59	1.185	-4	.141	-89	4.39	-4	.004	.002	6.21	-4	.307	.004	1.62	-3	1.187	.013
60	60	1.438	-5	.145	-89	6.36	-7	1.305	.000	6.62	-6	.311	.001	3.02	-4	1.197	.002
	61	1.716	-7	.000	-145	1.40	0	-6.00	1.305	1.23	-6	.300	.012	1.42	0	.000	1.197
	62	1.557	-2	.016	-129	6.60	-1	.846	.160	1.12	-6	.300	.012	3.80	-1	.600	.532
	63	1.610	-2	.031	-114	2.51	-1	1.123</									



Table 3.11: Parameters at 0.55 Microns

Table J.11. Parameters at 0.03 molar O <sub>3</sub>											
Alt. km		Rayleigh attenu- coeff. (km <sup>-1</sup> )		Rayleigh optical thick- (h=)		Rayleigh optical thick- (h=)		Aerosol attenu- coeff. (km <sup>-1</sup> )		Aerosol optical thick- (h=)	
V <sub>n</sub>	h	B <sub>r</sub>	T <sub>r</sub>	T' <sub>r</sub>	P <sub>r</sub>	B <sub>p</sub>	T <sub>p</sub>	T' <sub>p</sub>	P <sub>p</sub>	B <sub>ext</sub>	T <sub>ext</sub>
2	3	1.162	-2	-0.000	-0.098	1.094	0	-0.050	1.676	3.28	-4
	4	1.055	-2	-0.011	-0.087	5.50	-1	1.135	.560	3.00	-4
	5	2.750	-3	-0.021	-0.077	1.19	-1	1.480	.196	2.70	-4
	6	6.627	-3	-0.030	-0.068	5.44	-2	1.585	.091	2.30	-4
	7	7.74	-3	-0.038	-0.060	1.05	-2	1.617	.059	2.08	-4
	8	6.987	-3	-0.046	-0.052	5.02	-2	1.626	.049	2.03	-4
	9	3.423	-3	-0.072	-0.026	3.17	-3	1.644	.032	3.42	-4
	10	1.086	-3	-0.086	-0.012	2.65	-3	1.638	.017	3.42	-4
	11	8.432	-4	-0.093	-0.005	1.49	-4	1.616	.017	9.16	-4
	12	3.363	-6	-0.096	-0.002	4.15	-4	1.614	.002	3.97	-4
3	4	8.030	-5	-0.098	-0.001	3.49	-5	1.616	.000	3.97	-4
	5	9.743	-6	-0.098	-0.000	6.02	-7	1.616	.000	1.71	-5
	6	1.162	-2	-0.000	-0.098	1.29	0	-0.050	1.298	3.28	-4
	7	1.055	-2	-0.011	-0.087	4.75	-1	-0.080	1.80	3.00	-4
	8	2.750	-3	-0.021	-0.077	1.40	-1	1.037	.171	2.70	-4
	9	6.627	-3	-0.030	-0.068	4.02	-2	1.221	.087	2.30	-4
	10	7.74	-3	-0.038	-0.060	1.12	-2	1.449	.059	2.08	-4
	11	6.987	-3	-0.046	-0.052	5.02	-2	1.559	.049	2.03	-4
	12	3.423	-3	-0.072	-0.026	3.17	-3	1.616	.032	3.42	-4
	13	1.086	-3	-0.086	-0.012	2.65	-3	1.616	.016	3.42	-4
4	4	8.030	-5	-0.093	-0.005	1.59	-3	1.626	.006	1.51	-4
	5	9.743	-6	-0.096	-0.002	4.15	-4	1.626	.002	1.66	-4
	6	8.370	-5	-0.098	-0.001	3.49	-5	1.626	.000	3.97	-4
	7	9.743	-6	-0.098	-0.000	6.02	-7	1.626	.000	1.71	-5
	8	1.162	-2	-0.000	-0.098	9.46	-1	-0.050	1.298	3.28	-4
	9	1.055	-2	-0.011	-0.087	4.75	-1	-0.080	1.80	3.00	-4
	10	2.750	-3	-0.021	-0.077	1.18	-1	1.598	.365	3.00	-4
	11	6.627	-3	-0.030	-0.068	4.12	-2	1.606	.157	2.70	-4
	12	7.74	-3	-0.038	-0.060	1.12	-2	1.619	.086	2.30	-4
	13	6.987	-3	-0.046	-0.052	5.02	-2	1.626	.059	2.08	-4
5	4	8.030	-5	-0.093	-0.005	1.59	-3	1.626	.006	1.51	-4
	5	9.743	-6	-0.096	-0.002	4.15	-4	1.626	.002	1.66	-4
	6	8.370	-5	-0.098	-0.001	3.49	-5	1.626	.000	3.97	-4
	7	9.743	-6	-0.098	-0.000	6.02	-7	1.626	.000	1.71	-5
	8	1.162	-2	-0.000	-0.098	9.46	-1	-0.050	1.298	3.28	-4
	9	1.055	-2	-0.011	-0.087	4.75	-1	-0.080	1.80	3.00	-4
	10	2.750	-3	-0.021	-0.077	1.18	-1	1.606	.365	3.00	-4
	11	6.627	-3	-0.030	-0.068	4.12	-2	1.619	.157	2.70	-4
	12	7.74	-3	-0.038	-0.060	1.12	-2	1.626	.086	2.30	-4
	13	6.987	-3	-0.046	-0.052	5.02	-2	1.633	.059	2.08	-4



Table 3.12. Parameters at 0.60 Microns

Met.	Alt. Rge (km)	Rayleigh atten. coeff. (km <sup>-1</sup> )	Rayleigh optical thick. (0-h)	Rayleigh optical thick. (h-w)	Aerosol atten. coeff. (km <sup>-1</sup> )	Aerosol optical thick. (0-h)	Aerosol optical thick. (h-w)	Ozone absorb. coeff. (km <sup>-1</sup> )	Ozone optical thick. (0-h)	Ozone optical thick. (h-w)	Ext. coeff. (km <sup>-1</sup> )	Ext. optical thick. (0-h)	Ext. optical thick. (h-w)		
								E <sub>r</sub>	E <sub>r'</sub>	E <sub>p</sub>	E <sub>p'</sub>	E <sub>3</sub>	E <sub>3'</sub>	E <sub>ext</sub>	E <sub>ext'</sub>
2	6.126	-3	.000	.069	1.73	0	1.510	4.70	-4	.000	.005	1.76	0	.000	1.524
	7.031	-3	.008	.061	2.32	-1	1.016	.496	-.4	.200	.004	5.40	-1	1.024	.600
	6.101	-3	.015	.054	1.64	-1	1.328	1.02	-.4	.001	.004	1.71	-1	1.364	.450
	6.074	-3	.021	.048	1.425	-2	1.304	.086	-.4	.001	.003	5.67	-2	1.447	.177
	6.049	-3	.027	.042	1.55	-2	1.454	.056	-.4	.002	.003	2.12	-2	1.483	.141
	6.023	-3	.032	.037	1.77	-3	1.473	.067	-.4	.002	.003	1.96	-3	1.497	.127
	6.003	-3	.034	.031	1.61	-3	1.480	.030	-.4	.003	.001	6.22	-3	1.534	.080
	5.975	-3	.034	.031	1.62	-3	1.480	.030	-.4	.003	.001	6.12	-3	1.534	.080
	5.947	-3	.034	.031	1.52	-3	1.494	.016	-.4	.008	.001	5.12	-3	1.563	.061
	5.919	-4	.034	.031	1.61	-3	1.525	.005	-.4	.018	.001	4.17	-3	1.586	.039
3	6.069	-4	.007	.007	3.94	-4	1.529	.002	-.4	.238	.016	3.06	-3	1.606	.013
	6.042	-4	.000	.000	4.12	-5	1.510	.000	-.4	.042	.003	6.57	-4	1.620	.003
	6.015	-5	.004	.000	5.72	-7	1.510	.000	-.4	.445	.000	3.20	-5	1.624	.000
	5.987	-6	.069	.000	2.52	-3	1.494	.016	-.4	.008	.001	5.12	-3	1.563	.061
	5.961	-3	.061	.008	2.52	-3	1.494	.016	-.4	.008	.001	5.12	-3	1.563	.061
	5.934	-4	.061	.008	2.52	-3	1.485	.005	-.4	.008	.001	5.12	-3	1.563	.061
	5.907	-4	.061	.008	2.52	-3	1.485	.005	-.4	.008	.001	5.12	-3	1.563	.061
	5.881	-5	.061	.000	3.12	-5	1.090	.000	-.4	.042	.003	6.57	-4	1.200	.003
	5.853	-6	.061	.000	3.12	-5	1.090	.000	-.4	.042	.003	6.57	-4	1.200	.003
	5.827	-6	.061	.000	3.72	-7	1.490	.000	-.4	.445	.000	3.20	-5	1.204	.000
4	6.126	-3	.000	.069	1.15	0	1.090	4.70	-4	.000	.005	1.16	0	.000	.984
	7.031	-3	.008	.061	1.84	-1	.698	.392	-.4	.200	.004	3.92	-1	.706	.498
	6.101	-3	.015	.054	1.28	-1	.931	.159	-.4	.001	.004	1.35	-1	.967	.257
	6.074	-3	.021	.048	1.28	-2	1.029	.082	-.4	.001	.003	4.91	-2	1.031	.173
	6.049	-3	.027	.042	1.43	-2	1.335	.050	-.4	.002	.003	2.00	-2	1.063	.141
	6.023	-3	.032	.037	1.77	-3	1.463	.067	-.4	.002	.003	1.077	-2	1.127	.127
	6.003	-3	.034	.031	1.61	-3	1.460	.030	-.4	.004	.001	6.22	-3	1.146	.090
	5.975	-3	.034	.031	1.52	-3	1.460	.030	-.4	.004	.001	5.12	-3	1.143	.061
	5.947	-4	.034	.031	1.52	-3	1.474	.016	-.4	.008	.001	5.12	-3	1.165	.039
	5.919	-4	.034	.031	1.52	-3	1.485	.005	-.4	.008	.001	5.12	-3	1.184	.019
5	6.126	-3	.000	.069	1.15	0	1.090	4.70	-4	.000	.005	1.16	0	.000	.984
	7.031	-3	.008	.061	1.04	-1	.535	.342	-.4	.200	.004	3.12	-1	.543	.440
	6.101	-3	.015	.054	1.04	-1	.724	.146	-.4	.001	.004	1.15	-1	.967	.244
	6.074	-3	.021	.048	1.81	-2	.791	.079	-.4	.001	.003	4.45	-2	813	.170
	6.049	-3	.027	.042	1.35	-2	.815	.055	-.4	.002	.003	1.92	-2	.643	.140
	6.023	-3	.032	.037	1.77	-3	1.463	.067	-.4	.002	.003	1.077	-2	.643	.140
	6.003	-3	.034	.031	1.52	-3	1.460	.030	-.4	.004	.001	6.22	-3	1.146	.090
	5.975	-3	.034	.031	1.52	-3	1.474	.016	-.4	.008	.001	5.12	-3	1.165	.039
	5.947	-4	.034	.031	1.52	-3	1.485	.005	-.4	.008	.001	5.12	-3	1.184	.019
	5.919	-4	.034	.031	1.52	-3	1.494	.000	-.4	.008	.001	5.12	-3	1.200	.003
6	6.126	-3	.000	.069	5.72	-7	.870	.000	-.4	.445	.000	3.20	-5	.983	.000
	7.031	-3	.008	.061	4.04	-1	.686	.1	-.4	.200	.004	8.69	-1	.000	.984
	6.101	-3	.015	.054	3.08	-1	.686	.1	-.4	.001	.004	3.12	-1	.543	.440
	6.074	-3	.021	.048	3.01	-2	.840	.030	-.4	.001	.004	1.15	-1	.967	.244
	6.049	-3	.027	.042	1.62	-2	.854	.016	-.4	.002	.003	4.45	-2	813	.170
	6.023	-3	.032	.037	1.77	-3	1.463	.067	-.4	.002	.003	1.92	-2	.643	.140
	6.003	-3	.034	.031	1.52	-3	1.474	.016	-.4	.008	.001	6.22	-3	1.146	.090
	5.975	-3	.034	.031	1.52	-3	1.485	.005	-.4	.008	.001	5.12	-3	1.165	.039
	5.947	-4	.034	.031	1.52	-3	1.494	.000	-.4	.008	.001	5.12	-3	1.200	.003
	5.919	-4	.034	.031	1.52	-3	1.503	.000	-.4	.445	.000	3.20	-5	.983	.000

4	4.156 -1	.000	.069	5.10 -1	.000	.638	4.10 -4	.000	.045	5.18 -1	.000	.751
4	7.401 -3	.008	.061	2.19 -1	.008	.271	4.30 -4	.200	.064	2.27 -1	.375	.376
2	6.701 -3	.015	.054	8.41 -2	.021	.130	3.87 -4	.001	.064	9.12 -2	.523	.228
3	6.074 -3	.021	.048	3.23 -2	.021	.562	.076	.320	.003	.387	.2	.167
3	5.455 -3	.027	.042	1.24 -2	.027	.563	.055	.298	.002	.063	.182	.2
6	4.903 -3	.032	.037	4.77 -3	.032	.551	.047	.232	.002	.063	.043	.140
2	2.753 -3	.051	.018	3.01 -3	.008	.037	.030	.660	.003	.063	.996	.3
12	1.247 -3	.061	.008	2.52 -3	.008	.621	.016	.131	.003	.061	.622	.127
4	2.914 -4	.062	.008	1.44 -3	.004	.034	.016	.216	.008	.036	.512	.061
2	2.664 -4	.067	.002	3.96 -4	.063	.002	.002	.238	.008	.028	.713	.038
4	5.635 -5	.068	.000	3.12 -5	.037	.000	.569	.000	.003	.306	.732	.019
2	6.837 -6	.069	.000	5.12 -7	.038	.000	2.46	.000	.000	.637	.748	.003
2	8.126 -1	.000	.069	4.24 -1	.000	.514	4.10 -4	.000	.045	4.32 -1	.000	.627
4	7.401 -3	.005	.061	1.73 -1	.005	.280	.234	.430	.000	.044	1.81 -1	.288
2	6.701 -3	.021	.048	7.06 -2	.027	.394	.120	.307	.001	.044	7.75 -2	.339
3	6.074 -3	.032	.037	2.87 -2	.032	.440	.076	.310	.001	.043	3.51 -2	.409
3	5.455 -3	.037	.032	1.17 -2	.032	.459	.055	.298	.002	.043	1.74 -2	.463
6	4.903 -3	.042	.032	4.27 -3	.032	.467	.047	.292	.002	.043	9.96	.140
2	2.753 -3	.051	.018	3.01 -3	.008	.484	.030	.642	.003	.043	.501	.127
12	1.247 -3	.061	.008	2.52 -3	.008	.457	.016	.131	.003	.041	.622	.090
4	2.914 -4	.065	.004	1.44 -3	.005	.568	.005	.216	.008	.036	.512	.061
2	2.664 -4	.067	.002	3.96 -4	.063	.002	.002	.238	.008	.028	.417	.038
4	5.635 -5	.068	.000	3.12 -5	.034	.000	.569	.000	.003	.306	.624	.019
2	6.837 -6	.069	.000	5.12 -7	.034	.000	2.46	.000	.000	.637	.627	.000
2	8.126 -1	.000	.069	4.24 -1	.000	.514	4.10 -4	.000	.045	4.32 -1	.000	.627
4	7.401 -3	.008	.061	1.46 -1	.022	.210	.210	.307	.001	.044	1.81 -1	.288
2	6.701 -3	.015	.054	6.14 -2	.015	.346	.113	.387	.001	.043	3.51 -2	.409
3	6.074 -3	.021	.048	2.82 -2	.027	.365	.072	.310	.001	.043	1.74 -2	.463
3	5.455 -3	.027	.027	1.12 -2	.027	.343	.055	.298	.002	.043	9.96	.140
6	4.903 -3	.032	.032	4.27 -3	.032	.350	.067	.292	.002	.043	.501	.127
2	2.753 -3	.051	.018	3.01 -3	.008	.407	.030	.642	.003	.041	.622	.090
12	1.247 -3	.061	.008	2.52 -3	.008	.421	.016	.131	.003	.041	.461	.061
4	2.914 -4	.065	.004	1.44 -3	.005	.442	.005	.216	.008	.036	.512	.061
2	2.664 -4	.067	.002	3.96 -4	.063	.002	.002	.238	.008	.028	.417	.038
4	5.635 -5	.068	.000	3.12 -5	.034	.000	.569	.000	.003	.306	.624	.019
2	6.837 -6	.069	.000	5.12 -7	.034	.000	2.46	.000	.000	.637	.627	.000
2	8.126 -1	.000	.069	4.24 -1	.000	.514	4.10 -4	.000	.045	4.32 -1	.000	.627
4	7.401 -3	.008	.061	1.46 -1	.022	.210	.210	.307	.001	.044	1.81 -1	.288
2	6.701 -3	.015	.054	6.14 -2	.015	.346	.113	.387	.001	.043	3.51 -2	.409
3	6.074 -3	.021	.048	2.82 -2	.027	.365	.072	.310	.001	.043	1.74 -2	.463
3	5.455 -3	.027	.027	1.12 -2	.027	.342	.055	.298	.002	.043	9.96	.140
6	4.903 -3	.032	.032	4.27 -3	.032	.350	.067	.292	.002	.043	.501	.127
2	2.753 -3	.051	.018	3.01 -3	.008	.407	.030	.642	.003	.041	.622	.090
12	1.247 -3	.061	.008	2.52 -3	.008	.421	.016	.131	.003	.041	.461	.061
4	2.914 -4	.065	.004	1.44 -3	.005	.442	.005	.216	.008	.036	.512	.061
2	2.664 -4	.067	.002	3.96 -4	.063	.002	.002	.238	.008	.028	.417	.038
4	5.635 -5	.068	.000	3.12 -5	.034	.000	.569	.000	.003	.306	.624	.019
2	6.837 -6	.069	.000	5.12 -7	.034	.000	2.46	.000	.000	.637	.627	.000
2	8.126 -1	.000	.069	4.24 -1	.000	.514	4.10 -4	.000	.045	4.32 -1	.000	.627
4	7.401 -3	.008	.061	1.46 -1	.022	.210	.210	.307	.001	.044	1.81 -1	.288
2	6.701 -3	.015	.054	6.14 -2	.015	.346	.113	.387	.001	.043	3.51 -2	.409
3	6.074 -3	.021	.048	2.82 -2	.027	.365	.072	.310	.001	.043	1.74 -2	.463
3	5.455 -3	.027	.027	1.12 -2	.027	.342	.055	.298	.002	.043	9.96	.140
6	4.903 -3	.032	.032	4.27 -3	.032	.350	.067	.292	.002	.043	.501	.127
2	2.753 -3	.051	.018	3.01 -3	.008	.407	.030	.642	.003	.041	.622	.090
12	1.247 -3	.061	.008	2.52 -3	.008	.421	.016	.131	.003	.041	.461	.061
4	2.914 -4	.065	.004	1.44 -3	.005	.442	.005	.216	.008	.036	.512	.061
2	2.664 -4	.067	.002	3.96 -4	.063	.002	.002	.238	.008	.028	.417	.038
4	5.635 -5	.068	.000	3.12 -5	.034	.000	.569	.000	.003	.306	.624	.019
2	6.837 -6	.069	.000	5.12 -7	.034	.000	2.46	.000	.000	.637	.627	.000
2	8.126 -1	.000	.069	4.24 -1	.000	.514	4.10 -4	.000	.045	4.32 -1	.000	.627
4	7.401 -3	.008	.061	1.46 -1	.022	.210	.210	.307	.001	.044	1.81 -1	.288
2	6.701 -3	.015	.054	6.14 -2	.015	.346	.113	.387	.001	.043	3.51 -2	.409
3	6.074 -3	.021	.048	2.82 -2	.027	.365	.072	.310	.001	.043	1.74 -2	.463
3	5.455 -3	.027	.027	1.12 -2	.027	.342	.055	.298	.002	.043	9.96	.140
6	4.903 -3	.032	.032	4.27 -3	.032	.350	.067	.292	.002	.043	.501	.127
2	2.753 -3	.051	.018	3.01 -3	.008	.407	.030	.642	.003	.041	.622	.090
12	1.247 -3	.061	.008	2.52 -3	.008	.421	.016	.131	.003	.041	.461	.061
4	2.914 -4	.065	.004	1.44 -3	.005	.442	.005	.216	.008	.036	.512	.061
2	2.664 -4	.067	.002	3.96 -4	.063	.002	.002	.238	.008	.028	.417	.038
4	5.635 -5	.068	.000	3.12 -5	.034	.000	.569	.000	.003	.306	.624	.019
2	6.837 -6	.069	.000	5.12 -7	.034	.000	2.46	.000	.000	.637	.627	.000
2	8.126 -1	.000	.069	4.24 -1	.000	.514	4.10 -4	.000	.045	4.32 -1	.000	.627
4	7.401 -3	.008	.061	1.46 -1	.022	.210	.210	.307	.001	.044	1.81 -1	.288
2	6.701 -3	.015	.054	6.14 -2	.015	.346	.113	.387	.001	.043	3.51 -2	.409
3	6.074 -3	.021	.048	2.82 -2	.027	.365	.072	.310	.001	.043	1.74 -2	.463
3	5.455 -3	.027	.027	1.12 -2	.027	.342	.055	.298	.002	.043	9.96	.140
6	4.903 -3	.032	.032	4.27 -3	.032	.350	.067	.292	.002	.043	.501	.127
2	2.753 -3	.051	.018	3.01 -3	.008	.407	.030	.642	.003	.041	.622	.090
12	1.247 -3	.061	.008	2.52 -3	.008	.421	.016	.131	.003	.041	.461	.061
4	2.914 -4	.065	.004	1.44 -3	.005	.442	.005	.216	.008	.036	.512	.061
2	2.664 -4	.067	.002	3.96 -4	.063	.002	.002	.238	.008	.028	.417	.038
4	5.635 -5	.068	.000	3.12 -5	.034	.000	.569	.000	.003	.306	.624	.019
2	6.837 -6	.069	.000	5.12 -7	.034	.000	2.46	.000	.000	.637	.627	.000
2	8.126 -1	.000	.069	4.24 -1	.000	.514	4.10 -4	.000	.045	4.32 -1	.000	.627
4	7.401 -3	.008	.061	1.46 -1	.022	.210	.210	.307	.001	.044	1.81 -1	.288
2	6.701 -3	.015	.054	6.14 -2	.015	.346	.113	.387	.001	.043	3.51 -2	.409
3	6.074 -3	.021	.048	2.82 -2	.027	.365	.072	.310	.001	.043	1.74 -2	

Table 3.13. Parameters at 0.65 Microns

9.873	-1	3.346	-1	4.376	-1	3.562	-1	2.552	-1	1.969	-1	1.277	-1	1.976	-1	4.971	-1	6.962	-1
-1.864	-1	4.862	-1	3.115	-1	4.377	-1	3.563	-1	2.553	-1	1.970	-1	1.278	-1	1.977	-1	4.972	-1
-0.939	-1	7.716	-1	0.934	-1	3.116	-1	4.378	-1	3.564	-1	2.554	-1	1.971	-1	1.279	-1	1.978	-1
-0.915	-1	1.321	-1	0.935	-1	4.379	-1	3.565	-1	2.555	-1	1.972	-1	1.280	-1	1.979	-1	4.973	-1
-0.882	-1	7.717	-1	0.936	-1	3.117	-1	4.380	-1	3.566	-1	2.556	-1	1.973	-1	1.281	-1	1.980	-1
-0.849	-1	1.322	-1	0.937	-1	4.381	-1	3.567	-1	2.557	-1	1.974	-1	1.282	-1	1.981	-1	4.974	-1
-0.815	-1	7.718	-1	0.938	-1	3.118	-1	4.382	-1	3.568	-1	2.558	-1	1.975	-1	1.283	-1	1.982	-1
-0.771	-1	1.323	-1	0.939	-1	4.383	-1	3.569	-1	2.559	-1	1.976	-1	1.284	-1	1.983	-1	4.975	-1
-0.727	-1	7.719	-1	0.940	-1	3.119	-1	4.384	-1	3.570	-1	2.560	-1	1.977	-1	1.285	-1	1.984	-1
-0.683	-1	1.324	-1	0.941	-1	4.385	-1	3.571	-1	2.561	-1	1.978	-1	1.286	-1	1.985	-1	4.976	-1
-0.639	-1	7.720	-1	0.942	-1	3.120	-1	4.386	-1	3.572	-1	2.562	-1	1.979	-1	1.287	-1	1.986	-1
-0.595	-1	1.325	-1	0.943	-1	4.387	-1	3.573	-1	2.563	-1	1.980	-1	1.288	-1	1.987	-1	4.977	-1
-0.551	-1	7.721	-1	0.944	-1	3.121	-1	4.388	-1	3.574	-1	2.564	-1	1.981	-1	1.289	-1	1.988	-1
-0.507	-1	1.326	-1	0.945	-1	4.389	-1	3.575	-1	2.565	-1	1.982	-1	1.290	-1	1.989	-1	4.978	-1
-0.463	-1	7.722	-1	0.946	-1	3.122	-1	4.390	-1	3.576	-1	2.566	-1	1.983	-1	1.291	-1	1.990	-1
-0.419	-1	1.327	-1	0.947	-1	4.391	-1	3.577	-1	2.567	-1	1.984	-1	1.292	-1	1.991	-1	4.979	-1
-0.375	-1	7.723	-1	0.948	-1	3.123	-1	4.392	-1	3.578	-1	2.568	-1	1.985	-1	1.293	-1	1.992	-1
-0.331	-1	1.328	-1	0.949	-1	4.393	-1	3.579	-1	2.569	-1	1.986	-1	1.294	-1	1.993	-1	4.980	-1
-0.287	-1	7.724	-1	0.950	-1	3.124	-1	4.394	-1	3.580	-1	2.570	-1	1.987	-1	1.295	-1	1.994	-1
-0.243	-1	1.329	-1	0.951	-1	4.395	-1	3.581	-1	2.571	-1	1.988	-1	1.296	-1	1.995	-1	4.981	-1
-0.199	-1	7.725	-1	0.952	-1	3.125	-1	4.396	-1	3.582	-1	2.572	-1	1.989	-1	1.297	-1	1.996	-1
-0.155	-1	1.330	-1	0.953	-1	4.397	-1	3.583	-1	2.573	-1	1.990	-1	1.298	-1	1.997	-1	4.982	-1
-0.111	-1	7.726	-1	0.954	-1	3.126	-1	4.398	-1	3.584	-1	2.574	-1	1.991	-1	1.299	-1	1.998	-1
-0.067	-1	1.331	-1	0.955	-1	4.399	-1	3.585	-1	2.575	-1	1.992	-1	1.300	-1	1.999	-1	4.983	-1
-0.023	-1	7.727	-1	0.956	-1	3.127	-1	4.400	-1	3.586	-1	2.576	-1	1.993	-1	1.301	-1	1.999	-1
0.023	-1	1.332	-1	0.957	-1	4.401	-1	3.587	-1	2.577	-1	1.994	-1	1.302	-1	1.999	-1	4.984	-1
0.067	-1	7.728	-1	0.958	-1	3.128	-1	4.402	-1	3.588	-1	2.578	-1	1.995	-1	1.303	-1	1.999	-1
0.111	-1	1.333	-1	0.959	-1	4.403	-1	3.589	-1	2.579	-1	1.996	-1	1.304	-1	1.999	-1	4.985	-1
0.155	-1	7.729	-1	0.960	-1	3.129	-1	4.404	-1	3.590	-1	2.580	-1	1.997	-1	1.305	-1	1.999	-1
0.199	-1	1.334	-1	0.961	-1	4.405	-1	3.591	-1	2.581	-1	1.998	-1	1.306	-1	1.999	-1	4.986	-1
0.243	-1	7.730	-1	0.962	-1	3.130	-1	4.406	-1	3.592	-1	2.582	-1	1.999	-1	1.307	-1	1.999	-1
0.287	-1	1.335	-1	0.963	-1	4.407	-1	3.593	-1	2.583	-1	2.000	-1	1.308	-1	1.999	-1	4.987	-1
0.331	-1	7.731	-1	0.964	-1	3.131	-1	4.408	-1	3.594	-1	2.584	-1	1.309	-1	1.999	-1	4.988	-1
0.375	-1	1.336	-1	0.965	-1	4.409	-1	3.595	-1	2.585	-1	2.001	-1	1.310	-1	1.999	-1	4.989	-1
0.419	-1	7.732	-1	0.966	-1	3.132	-1	4.410	-1	3.596	-1	2.586	-1	1.311	-1	1.999	-1	4.990	-1

Table 3-16 Page numbers 3-572 WESTINGHOUSE



Table 3.15. Parameters at 0.89 Microns

Ref.	Alt. Age (km)	Ray length atmos. coeff. (km <sup>-1</sup> )	Ray length optical thick. (0-h)	Ray length optical thick. (h-0)	Atmosol specif. coeff. (km <sup>-1</sup> )	Atmosol specif. coeff. (h-0)	Atmosol specif. coeff. (0-h)	Atmosol specif. coeff. (h-h)	Giant				Giant				Giant			
									V <sub>1</sub>	A <sub>1</sub>	E <sub>1</sub>	T <sub>1</sub>	V <sub>2</sub>	A <sub>2</sub>	E <sub>2</sub>	T <sub>2</sub>	V <sub>3</sub>	A <sub>3</sub>	E <sub>3</sub>	T <sub>3</sub>
2	2.546	-1	-0.00	-0.21	1.29	1	-0.53	1.153	3.26	1	-0.59	1.27	1	-0.53	1.153	3.26	1	-0.59	1.27	1
4	2.469	-3	-0.02	-0.19	0.46	-1	-0.26	-0.286	3.26	1	-0.53	1.27	1	-0.59	1.153	3.26	1	-0.53	1.27	1
5	2.091	-3	-0.07	-0.17	0.45	-1	-0.05	-0.16	2.93	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
6	1.489	-3	-0.07	-0.15	0.45	-2	-0.02	-0.17	2.71	1	-0.53	1.27	1	-0.53	1.27	2.71	1	-0.53	1.27	1
7	1.702	-3	-0.04	-0.13	0.45	-2	-0.02	-0.17	2.62	1	-0.53	1.27	1	-0.53	1.27	2.62	1	-0.53	1.27	1
8	1.546	-3	-0.10	-0.04	0.45	-2	-0.10	-0.47	2.59	1	-0.53	1.27	1	-0.53	1.27	2.59	1	-0.53	1.27	1
9	1.549	-4	-0.016	-0.04	0.45	-2	-0.04	-0.13	2.51	1	-0.53	1.27	1	-0.53	1.27	2.51	1	-0.53	1.27	1
10	2.045	-4	-0.019	-0.031	0.45	-3	-0.04	-0.13	2.45	1	-0.53	1.27	1	-0.53	1.27	2.45	1	-0.53	1.27	1
11	1.467	-4	-0.020	-0.031	0.45	-3	-0.04	-0.13	2.42	1	-0.53	1.27	1	-0.53	1.27	2.42	1	-0.53	1.27	1
12	4.324	-5	-0.021	-0.031	0.45	-3	-0.04	-0.13	2.40	1	-0.53	1.27	1	-0.53	1.27	2.40	1	-0.53	1.27	1
13	1.754	-5	-0.021	-0.031	0.45	-3	-0.04	-0.13	2.38	1	-0.53	1.27	1	-0.53	1.27	2.38	1	-0.53	1.27	1
14	2.153	-6	-0.021	-0.030	0.45	-7	-0.04	-0.13	2.35	1	-0.53	1.27	1	-0.53	1.27	2.35	1	-0.53	1.27	1
15	2.546	-3	-0.00	-0.21	1.29	1	-0.53	1.153	3.26	1	-0.59	1.27	1	-0.53	1.153	3.26	1	-0.59	1.27	1
16	2.469	-3	-0.02	-0.19	0.46	-1	-0.26	-0.286	3.26	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
17	2.091	-3	-0.07	-0.17	0.45	-1	-0.17	-0.16	2.93	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
18	1.489	-3	-0.07	-0.15	0.45	-2	-0.04	-0.17	2.71	1	-0.53	1.27	1	-0.53	1.27	2.71	1	-0.53	1.27	1
19	1.702	-3	-0.04	-0.13	0.45	-2	-0.02	-0.17	2.62	1	-0.53	1.27	1	-0.53	1.27	2.62	1	-0.53	1.27	1
20	1.546	-3	-0.10	-0.04	0.45	-2	-0.10	-0.47	2.59	1	-0.53	1.27	1	-0.53	1.27	2.59	1	-0.53	1.27	1
21	1.549	-4	-0.016	-0.04	0.45	-2	-0.04	-0.13	2.51	1	-0.53	1.27	1	-0.53	1.27	2.51	1	-0.53	1.27	1
22	2.045	-4	-0.019	-0.031	0.45	-3	-0.04	-0.13	2.45	1	-0.53	1.27	1	-0.53	1.27	2.45	1	-0.53	1.27	1
23	1.467	-4	-0.020	-0.031	0.45	-3	-0.04	-0.13	2.42	1	-0.53	1.27	1	-0.53	1.27	2.42	1	-0.53	1.27	1
24	4.324	-5	-0.021	-0.031	0.45	-3	-0.04	-0.13	2.40	1	-0.53	1.27	1	-0.53	1.27	2.40	1	-0.53	1.27	1
25	1.754	-5	-0.021	-0.031	0.45	-3	-0.04	-0.13	2.38	1	-0.53	1.27	1	-0.53	1.27	2.38	1	-0.53	1.27	1
26	2.153	-6	-0.021	-0.030	0.45	-7	-0.04	-0.13	2.35	1	-0.53	1.27	1	-0.53	1.27	2.35	1	-0.53	1.27	1
27	2.546	-3	-0.00	-0.21	1.29	1	-0.53	1.153	3.26	1	-0.59	1.27	1	-0.53	1.153	3.26	1	-0.59	1.27	1
28	2.469	-3	-0.02	-0.19	0.46	-1	-0.26	-0.286	3.26	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
29	2.091	-3	-0.07	-0.17	0.45	-1	-0.17	-0.16	2.93	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
30	1.489	-3	-0.07	-0.15	0.45	-2	-0.04	-0.17	2.71	1	-0.53	1.27	1	-0.53	1.27	2.71	1	-0.53	1.27	1
31	1.702	-3	-0.04	-0.13	0.45	-2	-0.02	-0.17	2.62	1	-0.53	1.27	1	-0.53	1.27	2.62	1	-0.53	1.27	1
32	1.546	-3	-0.10	-0.04	0.45	-2	-0.10	-0.47	2.59	1	-0.53	1.27	1	-0.53	1.27	2.59	1	-0.53	1.27	1
33	1.549	-4	-0.016	-0.04	0.45	-2	-0.04	-0.13	2.51	1	-0.53	1.27	1	-0.53	1.27	2.51	1	-0.53	1.27	1
34	2.045	-4	-0.019	-0.031	0.45	-3	-0.04	-0.13	2.45	1	-0.53	1.27	1	-0.53	1.27	2.45	1	-0.53	1.27	1
35	1.467	-4	-0.020	-0.031	0.45	-3	-0.04	-0.13	2.42	1	-0.53	1.27	1	-0.53	1.27	2.42	1	-0.53	1.27	1
36	4.324	-5	-0.021	-0.031	0.45	-3	-0.04	-0.13	2.40	1	-0.53	1.27	1	-0.53	1.27	2.40	1	-0.53	1.27	1
37	1.754	-5	-0.021	-0.031	0.45	-3	-0.04	-0.13	2.38	1	-0.53	1.27	1	-0.53	1.27	2.38	1	-0.53	1.27	1
38	2.153	-6	-0.021	-0.030	0.45	-7	-0.04	-0.13	2.35	1	-0.53	1.27	1	-0.53	1.27	2.35	1	-0.53	1.27	1
39	2.546	-3	-0.00	-0.21	1.29	1	-0.53	1.153	3.26	1	-0.59	1.27	1	-0.53	1.153	3.26	1	-0.59	1.27	1
40	2.469	-3	-0.02	-0.19	0.46	-1	-0.26	-0.286	3.26	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
41	2.091	-3	-0.07	-0.17	0.45	-1	-0.17	-0.16	2.93	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
42	1.489	-3	-0.07	-0.15	0.45	-2	-0.04	-0.17	2.71	1	-0.53	1.27	1	-0.53	1.27	2.71	1	-0.53	1.27	1
43	1.702	-3	-0.04	-0.13	0.45	-2	-0.02	-0.17	2.62	1	-0.53	1.27	1	-0.53	1.27	2.62	1	-0.53	1.27	1
44	1.546	-3	-0.10	-0.04	0.45	-2	-0.10	-0.47	2.59	1	-0.53	1.27	1	-0.53	1.27	2.59	1	-0.53	1.27	1
45	1.549	-4	-0.016	-0.04	0.45	-2	-0.04	-0.13	2.51	1	-0.53	1.27	1	-0.53	1.27	2.51	1	-0.53	1.27	1
46	2.045	-4	-0.019	-0.031	0.45	-3	-0.04	-0.13	2.45	1	-0.53	1.27	1	-0.53	1.27	2.45	1	-0.53	1.27	1
47	1.467	-4	-0.020	-0.031	0.45	-3	-0.04	-0.13	2.42	1	-0.53	1.27	1	-0.53	1.27	2.42	1	-0.53	1.27	1
48	4.324	-5	-0.021	-0.031	0.45	-3	-0.04	-0.13	2.40	1	-0.53	1.27	1	-0.53	1.27	2.40	1	-0.53	1.27	1
49	1.754	-5	-0.021	-0.031	0.45	-3	-0.04	-0.13	2.38	1	-0.53	1.27	1	-0.53	1.27	2.38	1	-0.53	1.27	1
50	2.153	-6	-0.021	-0.030	0.45	-7	-0.04	-0.13	2.35	1	-0.53	1.27	1	-0.53	1.27	2.35	1	-0.53	1.27	1
51	2.546	-3	-0.00	-0.21	1.29	1	-0.53	1.153	3.26	1	-0.59	1.27	1	-0.53	1.153	3.26	1	-0.59	1.27	1
52	2.469	-3	-0.02	-0.19	0.46	-1	-0.26	-0.286	3.26	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
53	2.091	-3	-0.07	-0.17	0.45	-1	-0.17	-0.16	2.93	1	-0.53	1.27	1	-0.53	1.27	2.93	1	-0.53	1.27	1
54	1.489	-3	-0.07	-0.15	0.45	-2	-0.04	-0.17	2.71	1	-0.53	1.27	1	-0.53	1.27	2.71	1	-0.53	1.27	1
55	1.702	-3	-0.04	-0.13	0.45	-2	-0.02	-0.17	2.62	1	-0.53	1.27	1	-0.53	1.27	2.62	1	-0.53	1.27	1
56	1.546	-3	-0.10	-0.04	0.45	-2														



Table 3.16. Parameters at 0.30 Microns

Net. Alt. Pge (km)	Rayleigh optical thick. (km- <sup>2</sup> )	Rayleigh optical thick. (km- <sup>2</sup> )	Aerosol atten. coeff. (km- <sup>2</sup> )	Aerosol optical thick. (km- <sup>2</sup> )	Aerosol				Ozone				Stratos. ozone coeff. (km- <sup>2</sup> )				Ext. coeff. (km- <sup>2</sup> )							
					V <sub>r</sub>	h	E	p	V <sub>r</sub>	h	E	p	V <sub>r</sub>	h	E	p	V <sub>r</sub>	h	E	p	V <sub>r</sub>	h	E	p
2	0	1.283	-3	.000	-.013	1.17	0	-.000	1.053	0	-.000	-.000	1.17	0	-.000	-.000	1.17	0	-.000	-.000	1.17	0	-.000	-.000
	1	1.436	-3	-.002	-.012	1.71	-1	-.055	-.059	0	-.000	-.000	1.73	-1	-.000	-.000	1.73	-1	-.000	-.000	1.73	-1	-.000	-.000
	2	1.500	-3	-.003	-.010	1.18	-1	-.016	-.138	0	-.000	-.000	1.20	-1	-.000	-.000	1.20	-1	-.000	-.000	1.20	-1	-.000	-.000
	3	1.475	-3	-.004	-.009	1.70	-2	-.008	-.067	0	-.000	-.000	1.72	-2	-.000	-.000	1.72	-2	-.000	-.000	1.72	-2	-.000	-.000
	4	1.059	-3	-.005	-.008	1.20	-2	-.007	-.069	0	-.000	-.000	1.22	-2	-.000	-.000	1.22	-2	-.000	-.000	1.22	-2	-.000	-.000
	5	1.054	-3	-.006	-.007	1.07	-3	-.017	-.061	0	-.000	-.000	1.09	-3	-.000	-.000	1.09	-3	-.000	-.000	1.09	-3	-.000	-.000
	6	1.050	-3	-.010	-.004	2.41	-3	1.016	-.036	0	-.000	-.000	2.43	-3	1.029	-.036	2.43	-3	1.034	-.036	2.43	-3	1.034	-.036
3	0	2.342	-4	-.010	-.004	2.01	-3	1.016	-.036	0	-.000	-.000	2.03	-3	1.029	-.036	2.03	-3	1.034	-.036	2.03	-3	1.034	-.036
	1	2.510	-4	-.012	-.002	1.013	-.000	1.049	-.013	0	-.000	-.000	2.05	-3	1.052	-.013	2.05	-3	1.052	-.013	2.05	-3	1.052	-.013
	2	1.474	-4	-.013	-.000	3.15	-4	1.052	-.031	0	-.000	-.000	2.07	-3	1.061	-.031	2.07	-3	1.065	-.031	2.07	-3	1.065	-.031
	3	1.053	-4	-.013	-.000	2.50	-7	1.053	-.031	0	-.000	-.000	2.09	-3	1.061	-.031	2.09	-3	1.067	-.031	2.09	-3	1.067	-.031
	4	1.427	-4	-.013	-.000	4.57	-7	1.053	-.031	0	-.000	-.000	2.10	-3	1.061	-.031	2.10	-3	1.067	-.031	2.10	-3	1.067	-.031
	5	1.583	-3	-.000	-.013	1.75	-1	-.000	-.000	0	-.000	-.000	2.12	-1	-.000	-.000	2.12	-1	-.000	-.000	2.12	-1	-.000	-.000
	6	1.436	-3	-.002	-.012	2.68	-1	-.077	-.248	0	-.000	-.000	2.14	-1	-.000	-.000	2.14	-1	-.000	-.000	2.14	-1	-.000	-.000
4	0	1.300	-3	-.003	-.010	9.25	-2	-.042	-.121	0	-.000	-.000	9.36	-2	-.000	-.000	9.36	-2	-.000	-.000	9.36	-2	-.000	-.000
	1	1.175	-3	-.004	-.009	3.20	-2	-.009	-.064	0	-.000	-.000	3.31	-2	-.000	-.000	3.31	-2	-.000	-.000	3.31	-2	-.000	-.000
	2	1.054	-3	-.005	-.008	1.10	-2	-.008	-.064	0	-.000	-.000	1.12	-2	-.000	-.000	1.12	-2	-.000	-.000	1.12	-2	-.000	-.000
	3	1.050	-3	-.006	-.007	3.61	-3	1.016	-.036	0	-.000	-.000	1.14	-3	1.029	-.036	1.14	-3	1.034	-.036	1.14	-3	1.034	-.036
	4	1.462	-4	-.010	-.004	2.61	-3	1.016	-.036	0	-.000	-.000	1.16	-3	1.029	-.036	1.16	-3	1.034	-.036	1.16	-3	1.034	-.036
	5	2.510	-4	-.012	-.002	2.01	-3	1.016	-.036	0	-.000	-.000	1.18	-3	1.029	-.036	1.18	-3	1.034	-.036	1.18	-3	1.034	-.036
	6	1.462	-4	-.013	-.001	3.13	-3	1.016	-.036	0	-.000	-.000	1.20	-3	1.029	-.036	1.20	-3	1.034	-.036	1.20	-3	1.034	-.036
5	0	2.178	-5	-.013	-.000	3.15	-4	1.016	-.001	0	-.000	-.000	2.22	-3	1.029	-.001	2.22	-3	1.034	-.001	2.22	-3	1.034	-.001
	1	1.093	-5	-.013	-.000	2.50	-5	1.016	-.001	0	-.000	-.000	2.24	-3	1.029	-.001	2.24	-3	1.034	-.001	2.24	-3	1.034	-.001
	2	1.093	-5	-.013	-.000	3.15	-5	1.016	-.001	0	-.000	-.000	2.26	-3	1.029	-.001	2.26	-3	1.034	-.001	2.26	-3	1.034	-.001
	3	1.093	-5	-.013	-.000	3.15	-5	1.016	-.001	0	-.000	-.000	2.28	-3	1.029	-.001	2.28	-3	1.034	-.001	2.28	-3	1.034	-.001
	4	1.327	-6	-.013	-.000	4.57	-7	1.016	-.001	0	-.000	-.000	2.30	-3	1.029	-.001	2.30	-3	1.034	-.001	2.30	-3	1.034	-.001
	5	1.583	-7	-.000	-.013	5.80	-1	-.000	-.011	0	-.000	-.000	2.32	-1	-.000	-.000	2.32	-1	-.000	-.000	2.32	-1	-.000	-.000
	6	1.436	-7	-.002	-.012	2.12	-1	-.040	-.121	0	-.000	-.000	2.34	-1	-.000	-.000	2.34	-1	-.000	-.000	2.34	-1	-.000	-.000
6	0	1.300	-3	-.003	-.010	7.77	-2	-.000	-.111	0	-.000	-.000	7.96	-2	-.000	-.000	7.96	-2	-.000	-.000	7.96	-2	-.000	-.000
	1	1.175	-3	-.004	-.009	2.85	-2	-.000	-.049	0	-.000	-.000	8.08	-2	-.000	-.000	8.08	-2	-.000	-.000	8.08	-2	-.000	-.000
	2	1.054	-3	-.005	-.008	1.04	-2	-.000	-.044	0	-.000	-.000	8.20	-2	-.000	-.000	8.20	-2	-.000	-.000	8.20	-2	-.000	-.000
	3	1.050	-3	-.006	-.007	3.81	-3	1.016	-.036	0	-.000	-.000	8.32	-2	-.000	-.000	8.32	-2	-.000	-.000	8.32	-2	-.000	-.000
	4	1.462	-4	-.010	-.004	2.41	-3	1.016	-.036	0	-.000	-.000	8.44	-2	-.000	-.000	8.44	-2	-.000	-.000	8.44	-2	-.000	-.000
	5	2.510	-4	-.012	-.002	2.01	-3	1.016	-.036	0	-.000	-.000	8.56	-2	-.000	-.000	8.56	-2	-.000	-.000	8.56	-2	-.000	-.000
	6	1.427	-4	-.013	-.001	3.13	-3	1.016	-.036	0	-.000	-.000	8.68	-2	-.000	-.000	8.68	-2	-.000	-.000	8.68	-2	-.000	-.000
5	0	1.300	-3	-.003	-.010	6.78	-2	-.000	-.044	0	-.000	-.000	8.80	-2	-.000	-.000	8.80	-2	-.000	-.000	8.80	-2	-.000	-.000
	1	1.175	-3	-.004	-.009	2.60	-2	-.000	-.045	0	-.000	-.000	8.92	-2	-.000	-.000	8.92	-2	-.000	-.000	8.92	-2	-.000	-.000
	2	1.054	-3	-.005	-.008	9.95	-2	-.000	-.044	0	-.000	-.000	9.04	-2	-.000	-.000	9.04	-2	-.000	-.000	9.04	-2	-.000	-.000
	3	1.050	-3	-.006	-.007	1.01	-3	1.016	-.036	0	-.000	-.000	9.16	-2	-.000	-.000	9.16	-2	-.000	-.000	9.16	-2	-.000	-.000
	4	1.462	-4	-.010	-.004	2.41	-3	1.016	-.036	0	-.000	-.000	9.28	-2	-.000	-.000	9.28	-2	-.000	-.000	9.28	-2	-.000	-.000
	5	2.516	-4	-.012	-.002	2.01	-3	1.016	-.036	0	-.000	-.000	9.40	-2	-.000	-.000	9.40	-2	-.000	-.000	9.40	-2	-.000	-.000
	6	1.429	-4	-.013	-.001	3.13	-3	1.016	-.036	0	-.000	-.000	9.52	-2	-.000	-.000	9.52	-2	-.000	-.000	9.52	-2	-.000	-.000
4	0	1.300	-3	-.003	-.010	6.78	-2	-.000	-.044	0	-.000	-.000	9.64	-2	-.000	-.000	9.64	-2	-.000	-.000	9.64	-2	-.000	-.000
	1	1.175	-3	-.004	-.009	2.60	-2	-.000	-.045	0	-.000	-.000	9.76	-2	-.000	-.000	9.76	-2	-.000	-.000	9.76	-2	-.000	-.000
	2	1.054	-3	-.005	-.008	9.95	-2	-.000	-.044	0	-.000	-.000	9.88	-2	-.000	-.000	9.88	-2	-.000	-.000	9.88	-2	-.000	-.0



Table 3.17. Parameters at 1.06 Microns

Met. Rge. (km)	Alt. (km)	Rayleigh		Rayleigh		Aerosol		Aerosol		Ozone		Ozone		Ext.		Ext.	
		atten. coeff. (h <sup>-1</sup> )	optical thick. (0-h)	atten. coeff. (h <sup>-1</sup> )	optical thick. (0-h)	optical thick. (km <sup>-1</sup> )	(h <sup>-1</sup> )	optical thick. (h <sup>-1</sup> )	(km <sup>-1</sup> )	absorp. coeff. (km <sup>-1</sup> )	(0-h)	optical thick. (h <sup>-1</sup> )	(km <sup>-1</sup> )	ext. coeff. (km <sup>-1</sup> )	optical thick. (0-h)	ext. coeff. (km <sup>-1</sup> )	optical thick. (h <sup>-1</sup> )
1	6.142	-4	.000	.007	1.05	0	.000	.354	0	.200	.000	1.05	0	.000	.961	.000	.961
1	7.436	-4	.001	.008	3.36	-1	.625	.328	.4	.200	.399	3.37	-1	.626	.335	.626	.335
2	6.731	-4	.001	.005	1.08	-1	.826	.127	0	.200	.000	1.09	-1	.828	.133	.828	.133
3	6.081	-4	.002	.005	3.47	-2	.851	.063	0	.200	.300	3.54	-2	.893	.065	.893	.065
4	5.480	-4	.003	.004	1.12	-2	.912	.042	0	.200	.000	1.17	-2	.914	.046	.914	.046
5	4.925	-4	.003	.004	3.59	-3	.918	.035	0	.200	.000	4.08	-3	.922	.039	.922	.039
2	2.765	-4	.005	.002	2.27	-3	.931	.023	0	.200	.000	2.56	-3	.935	.025	.935	.025
1	2.107	-4	.006	.004	1.90	-3	.942	.012	0	.200	.000	2.03	-3	.946	.013	.946	.013
2	2.446	-5	.007	.006	1.07	-3	.950	.004	0	.200	.000	1.13	-3	.956	.004	.956	.004
2	2.081	-7	.007	.000	2.97	-4	.953	.001	0	.200	.000	3.24	-4	.959	.001	.959	.001
3	1.660	-6	.007	.000	2.35	-5	.954	.000	0	.200	.000	2.92	-5	.961	.000	.961	.000
2	0.887	-7	.007	.000	4.31	-7	.954	.000	0	.200	.000	1.12	-6	.961	.000	.961	.000
3	6.142	-4	.000	.037	6.95	-1	.000	.692	0	.200	.000	6.96	-1	.000	.699	.000	.699
4	7.434	-4	.001	.006	8.43	-2	.430	.262	0	.200	.000	2.43	-1	.430	.268	.430	.268
2	6.731	-4	.001	.005	8.43	-2	.580	.112	0	.200	.000	8.32	-2	.581	.118	.581	.118
4	6.081	-4	.002	.005	2.95	-2	.632	.060	0	.200	.000	3.01	-2	.634	.065	.634	.065
5	5.480	-4	.003	.004	1.03	-2	.650	.044	0	.200	.000	1.08	-2	.653	.046	.653	.046
3	4.925	-4	.003	.004	3.59	-3	.656	.035	0	.200	.000	4.08	-3	.660	.039	.660	.039
2	2.765	-4	.005	.002	2.27	-3	.669	.023	0	.200	.000	2.56	-3	.674	.025	.674	.025
1	2.107	-4	.006	.001	1.90	-3	.680	.012	0	.200	.000	2.03	-3	.686	.013	.686	.013
2	1.530	-4	.006	.000	1.07	-3	.688	.004	0	.200	.000	1.13	-3	.694	.004	.694	.004
3	5.946	-5	.007	.000	2.97	-4	.651	.001	0	.200	.000	3.24	-4	.697	.001	.697	.001
2	2.081	-5	.007	.000	2.35	-5	.652	.000	0	.200	.000	2.92	-5	.679	.000	.679	.000
3	5.600	-6	.007	.000	4.31	-7	.652	.000	0	.200	.000	1.12	-6	.681	.000	.681	.000
2	0.887	-7	.007	.000	4.31	-7	.652	.000	0	.200	.000	1.12	-6	.681	.000	.681	.000
3	6.142	-4	.000	.007	5.20	-1	.000	.256	0	.200	.000	5.21	-1	.000	.561	.000	.561
4	7.434	-4	.001	.006	1.52	-1	.329	.225	0	.200	.000	1.53	-1	.330	.231	.330	.231
2	6.731	-4	.001	.005	7.11	-2	.451	.103	0	.200	.000	7.17	-2	.453	.109	.453	.109
3	6.081	-4	.002	.005	2.63	-2	.496	.058	0	.200	.000	2.89	-2	.498	.063	.498	.063
4	5.480	-4	.003	.004	9.71	-3	.513	.042	0	.200	.000	1.03	-2	.515	.046	.515	.046
3	4.925	-4	.003	.004	3.59	-3	.519	.035	0	.200	.000	4.08	-3	.522	.043	.522	.043
2	2.765	-4	.005	.002	2.27	-3	.532	.023	0	.200	.000	2.56	-3	.537	.025	.537	.025
1	2.107	-4	.006	.001	1.90	-3	.542	.012	0	.200	.000	2.03	-3	.548	.013	.548	.013
2	1.530	-4	.007	.000	1.07	-3	.550	.004	0	.200	.000	1.13	-3	.557	.004	.557	.004
3	5.946	-5	.007	.000	2.97	-4	.553	.001	0	.200	.000	3.24	-4	.560	.001	.560	.001
2	2.081	-5	.007	.000	2.35	-5	.554	.000	0	.200	.000	2.92	-5	.561	.000	.561	.000
3	5.600	-6	.007	.000	4.31	-7	.554	.000	0	.200	.000	1.12	-6	.561	.000	.561	.000
2	0.887	-7	.007	.000	4.31	-7	.554	.000	0	.200	.000	1.12	-6	.561	.000	.561	.000
3	6.142	-4	.000	.007	4.14	-1	.000	.468	0	.200	.000	4.15	-1	.000	.475	.000	.475
4	7.434	-4	.001	.006	1.60	-1	.268	.200	0	.200	.000	1.61	-1	.268	.201	.268	.201
2	6.731	-4	.001	.005	6.20	-2	.311	.097	0	.200	.000	6.27	-2	.313	.102	.313	.102
3	6.081	-4	.002	.005	2.40	-2	.411	.057	0	.200	.000	2.46	-2	.413	.062	.413	.062
4	5.480	-4	.003	.004	9.26	-3	.477	.061	0	.200	.000	9.83	-3	.429	.046	.429	.046
3	4.925	-4	.003	.004	3.59	-3	.433	.035	0	.200	.000	4.08	-3	.436	.039	.436	.039
2	2.765	-4	.005	.002	2.27	-3	.445	.023	0	.200	.000	2.56	-3	.450	.025	.450	.025
1	2.107	-4	.006	.001	1.90	-3	.456	.012	0	.200	.000	2.03	-3	.462	.013	.462	.013
2	1.530	-4	.006	.000	1.07	-3	.466	.004	0	.200	.000	1.13	-3	.470	.004	.470	.004
3	5.946	-5	.007	.000	2.97	-4	.467	.001	0	.200	.000	3.24	-4	.474	.001	.474	.001
2	2.081	-5	.007	.000	2.35	-5	.468	.000	0	.200	.000	2.92	-5	.475	.000	.475	.000
3	5.600	-6	.007	.000	4.31	-7	.468	.000	0	.200	.000	1.12	-6	.475	.000	.475	.000
2	0.887	-7	.007	.000	4.31	-7	.468	.000	0	.200	.000	1.12	-6	.475	.000	.475	.000



Table 3.18. Parameters at 1.26 Microns

Wrt.	Alt. Re	Rayleigh atten. coeff. (km) (km)	Rayleigh optical thick. (0-h)	Rayleigh optical thick. (0-h)	Aerosol				Ozone	Ozone	Ozone	Ext. coeff. (km <sup>-1</sup> )	Ext. optical thick. (0-h)	Ext. optical thick. (0-h)		
					Aerosol atten. coeff. (km <sup>-1</sup> )	Aerosol optical thick. (0-h)	Aerosol optical thick. (h-e)	Aerosol absorb. coeff. (km <sup>-1</sup> )	optical thick. (0-h)	optical thick. (h-e)	ext	ext	ext			
2	J	-.091	-	.000	.003	9.45	-1	.000	.872	0	.200	.000	9.46	-1	.000	-.076
	1	3.713	-	.000	.003	1.07	-1	.586	.206	0	.200	.000	3.08	-1	.568	.307
	2	3.362	-	.001	.003	9.99	-2	.752	.120	0	.200	.000	1.00	-1	.753	.122
	3	3.037	-	.001	.002	3.25	-2	.812	.060	0	.200	.000	3.28	-2	.813	.062
	4	2.741	-	.001	.002	1.06	-2	.832	.040	0	.200	.000	1.08	-2	.833	.042
	5	2.460	-	.002	.002	3.43	-3	.848	.034	0	.200	.000	3.68	-3	.840	.036
	6	2.181	-	.003	.003	2.17	-3	.850	.022	0	.200	.000	2.30	-3	.853	.023
	7	1.904	-	.003	.003	1.81	-3	.860	.012	0	.200	.000	1.88	-3	.863	.012
	8	1.639	-	.003	.003	1.02	-3	.866	.004	0	.200	.000	1.05	-3	.871	.004
	9	1.367	-	.003	.003	2.56	-4	.821	.001	0	.200	.000	2.97	-4	.874	.001
3	1	3.430	-	.003	.003	2.23	-4	.812	.000	0	.200	.000	2.53	-5	.875	.000
	2	3.050	-	.003	.003	4.11	-7	.812	.000	0	.200	.000	7.55	-7	.876	.000
	3	2.771	-	.003	.003	6.28	-1	.000	.633	0	.200	.000	6.29	-1	.000	-.637
	4	2.496	-	.003	.003	2.22	-1	.390	.243	0	.200	.000	2.22	-1	.391	.246
	5	2.220	-	.003	.002	7.82	-2	.526	.106	0	.200	.000	7.85	-2	.529	.108
	6	1.947	-	.001	.002	2.76	-2	.516	.057	0	.200	.000	2.79	-2	.517	.059
	7	1.674	-	.001	.002	9.73	-3	.513	.040	0	.200	.000	1.00	-2	.595	.042
	8	1.400	-	.002	.002	3.43	-3	.630	.034	0	.200	.000	3.68	-3	.601	.036
	9	1.131	-	.003	.003	2.17	-3	.614	.022	0	.200	.000	2.30	-3	.614	.023
	10	8.546	-	.003	.003	1.81	-3	.622	.012	0	.200	.000	1.88	-3	.625	.012
4	1	2.168	-	.003	.003	1.02	-3	.629	.004	0	.200	.000	1.05	-3	.633	.004
	2	1.893	-	.003	.003	2.84	-4	.632	.001	0	.200	.000	2.97	-4	.636	.001
	3	1.627	-	.003	.003	2.25	-5	.633	.000	0	.200	.000	2.53	-5	.637	.000
	4	1.360	-	.003	.003	4.11	-7	.623	.000	0	.200	.000	7.54	-7	.637	.000
	5	1.094	-	.000	.003	6.70	-1	.000	.508	0	.200	.000	6.70	-1	.000	-.511
	6	8.113	-	.000	.003	1.76	-1	.299	.208	0	.200	.000	1.76	-1	.299	.212
	7	5.162	-	.001	.003	6.57	-2	.411	.097	0	.200	.000	6.60	-2	.412	.100
	8	3.037	-	.001	.002	2.46	-2	.413	.055	0	.200	.000	2.49	-2	.454	.058
	9	2.741	-	.001	.002	9.18	-3	.468	.040	0	.200	.000	9.45	-3	.470	.042
	10	2.460	-	.001	.002	3.07	-3	.474	.034	0	.200	.000	3.68	-3	.476	.036
5	1	1.313	-	.004	.004	2.17	-3	.466	.022	0	.200	.000	2.30	-3	.489	.023
	2	1.048	-	.003	.003	1.81	-3	.496	.012	0	.200	.000	1.88	-3	.499	.012
	3	8.037	-	.003	.003	1.02	-3	.506	.004	0	.200	.000	1.05	-3	.507	.004
	4	2.737	-	.001	.002	2.84	-4	.507	.001	0	.200	.000	2.97	-4	.510	.001
	5	2.460	-	.002	.002	3.43	-3	.468	.000	0	.200	.000	4.53	-5	.511	.000
	6	1.313	-	.002	.002	4.11	-7	.508	.000	0	.200	.000	7.94	-7	.511	.000
	7	1.048	-	.003	.003	6.70	-1	.000	.508	0	.200	.000	6.70	-1	.000	-.511
	8	8.037	-	.003	.003	1.76	-1	.299	.208	0	.200	.000	1.76	-1	.299	.212
	9	6.162	-	.001	.002	2.46	-2	.413	.055	0	.200	.000	2.49	-2	.454	.058
	10	4.160	-	.001	.002	9.18	-3	.468	.040	0	.200	.000	9.45	-3	.470	.042
6	1	1.313	-	.004	.004	2.17	-3	.466	.022	0	.200	.000	2.30	-3	.489	.023
	2	1.048	-	.003	.003	1.81	-3	.496	.012	0	.200	.000	1.88	-3	.499	.012
	3	8.037	-	.003	.003	1.02	-3	.506	.004	0	.200	.000	1.05	-3	.507	.004
	4	2.737	-	.001	.002	2.84	-4	.507	.001	0	.200	.000	2.97	-4	.510	.001
	5	2.460	-	.002	.002	3.43	-3	.468	.000	0	.200	.000	4.53	-5	.511	.000
	6	1.313	-	.002	.002	6.70	-1	.000	.508	0	.200	.000	6.70	-1	.000	-.511
	7	1.048	-	.003	.003	1.76	-1	.299	.208	0	.200	.000	1.76	-1	.299	.212
	8	8.037	-	.003	.003	2.46	-2	.413	.055	0	.200	.000	2.49	-2	.454	.058
	9	6.162	-	.001	.002	9.18	-3	.468	.040	0	.200	.000	9.45	-3	.470	.042
	10	4.160	-	.001	.002	2.17	-3	.466	.022	0	.200	.000	2.30	-3	.489	.023
7	1	1.313	-	.004	.004	2.17	-3	.466	.022	0	.200	.000	2.30	-3	.489	.023
	2	1.048	-	.003	.003	1.81	-3	.496	.012	0	.200	.000	1.88	-3	.499	.012
	3	8.037	-	.003	.003	1.02	-3	.506	.004	0	.200	.000	1.05	-3	.507	.004
	4	2.737	-	.001	.002	2.84	-4	.507	.001	0	.200	.000	2.97	-4	.510	.001
	5	2.460	-	.002	.002	3.43	-3	.468	.000	0	.200	.000	4.53	-5	.511	.000
	6	1.313	-	.002	.002	6.70	-1	.000	.508	0	.200	.000	6.70	-1	.000	-.511
	7	1.048	-	.003	.003	1.76	-1	.299	.208	0	.200	.000	1.76	-1	.299	.212
	8	8.037	-	.003	.003	2.46	-2	.413	.055	0	.200	.000	2.49	-2	.454	.058
	9	6.162	-	.001	.002	9.18	-3	.468	.040	0	.200	.000	9.45	-3	.470	.042
	10	4.160	-	.001	.002	2.17	-3	.466	.022	0	.200	.000	2.30	-3	.489	.023
8	1	1.313	-	.004	.004	2.17	-3	.466	.022	0	.200	.000	2.30	-3	.489	.023
	2	1.048	-	.003	.003	1.81	-3	.496	.012	0	.200	.000	1.88	-3	.499	.012
	3	8.037	-	.003	.003	1.02	-3	.506	.004	0	.200	.000	1.05	-3	.507	.004
	4	2.737	-	.001	.002	2.84	-4	.507	.001	0	.200	.000	2.97	-4	.510	.001
	5	2.460	-	.002	.002	3.43	-3	.468	.000	0	.200	.000	4.53	-5	.511	.000
	6	1.313	-	.002	.002	6.70	-1	.000	.508	0	.200	.000	6.70	-1	.000	-.511
	7	1.048	-	.003	.003	1.76	-1	.299	.208	0	.200	.000	1.76	-1	.299	.212
	8	8.037	-	.003	.003	2.46	-2	.413	.055	0	.200	.000	2.49	-2	.454	.058
	9	6.162	-	.001	.002	9.18	-3	.468	.040	0	.200	.000	9.45	-3	.470	.042
	10	4.160	-	.001	.002	2.17	-3	.466	.022	0	.200	.000	2.30	-3	.489	.023
9	1	1.313	-	.004	.004	2.17	-3	.466	.022	0	.200	.000	2.30	-3	.489	.023
	2	1.048	-	.003	.003	1.81	-3	.496	.012	0	.200	.000	1.88	-3	.499	.012
	3	8.037	-	.00												



Tabelle 3.13: Partizipation von 157 Wählern



Table 3.23 Participants at 217 Victoria



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